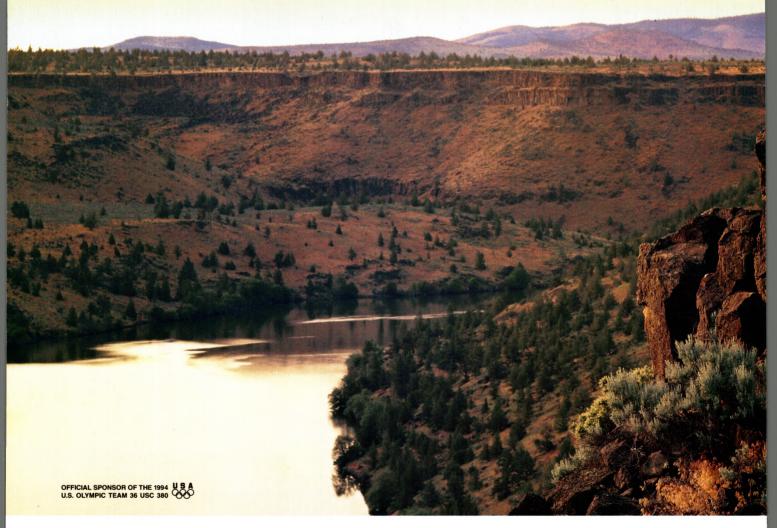


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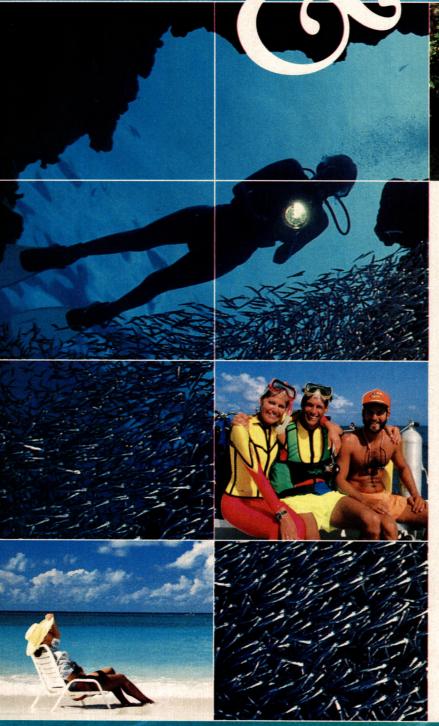
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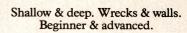
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#### Inside Scuba Diving

BY STEVE BLOUNT

### WIMPS AND THE GAMES PEOPLE PLAY

rankly, you people have shocked me; you're nothing but a bunch of WIMPs. My April proposal to create an organization— WIMP, for the not necessarily macho—generated more letters than our pieces on saving the Florida Keys, coral blasters and garibaldi thieves put together. It even got more mail than the picture of the naked guy "humping" a tank-though the naked guy ran a close second.

Frequent contributor Franklin Viola wrote to say that, thanks to my column, he's no longer afraid to wear his dry suit in the Caribbean (hey, you try sitting motionless for 90 minutes to get a picture of the rare spittoon-cheek blenny without wearing a rubber wrapper, Bucko).

The lovely and talented Zale Parry, who played Mike Nelson's sidekick in "Sea Hunt," asked for a charter membership. Permission granted, Zale, even though some of the scuba stunts you did for TV and movies would make a Jersey wreck diver shudder.

Contributing editor Phil Trupp—a long-time WIMP and the organization's chief philosopher—called to give us

the etymology of "wimp." First he had to explain that etymology means "why people started talking like that in the first place." According to Phil, wimp was coined by U.S. Army Rangers to describe someone who failed Ranger school. It stood for "weak in mountain portion," apparently the most common variety of un-Rangerlike behavior. I don't know about you, but being slammed repeatedly against a granite wall while more or less free-falling 400

or 500 feet with a noodle-sized nylon rope tied around my waist sounds like something I might not want to be very good at. Guess that makes me a real wimp and not just a WIMP.

My favorite letter, however, came from Frank Hutchinson of Lakeland, Fla., who gets a special place of honor. Frank did say that he and his buddy get up at 6 a.m. and make two dives before breakfast—that's borderline macho, at best. However, they spend the rest of the day shopping and sightseeing and are in bed by 9 p.m. Oh yeah, Frank mentions he's 76 years old. Frank also said he's tired of taking crap about his dive habits from whippersnappers whose fathers were still wearing water wings when Frank

> cleared his first snorkel. As our official Oldest WIMP, he won't have to. Congratulations, Frank.

Now comes disturbing news for WIMPs; an insidious attempt to machofy a whole new generation of divers, and it comes in the deceptively

tame guise of "underwater games."

For some people, going under water to gaze in rapt wonder at the planet's most complex ecosystem-a privilege enjoyed by a scant .2 percent of the Earth's population—just ain't enough. Roughhousing with sharks doesn't get their adrenaline flowing. They find no excitement in wriggling back a mile or so into a stone labyrinth with only one way out. Nope. They need more. They need competition.



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The thrill of victory; the agony of defeat. Doing the Ickey shuffle kick in a submarine end zone.

And we're not talking Marco Polo here, or even water volleyball (which is, believe it or don't, an Olympic sport).

We're talking underwater rugby.

Underwater hockey, which has been with us for a decade or so, is bad enough. It would seem that water would lessen the probability of injury; I mean, how hard could you body check somebody while swimming? But injuries do occur: Have you ever tried to fit a cup protector under a Speedo? Ouch.

Now we have underwater rugby. I am not making this up. There's an international underwater rugby tournament going on right now in France (where else). We received a brochure photocopied onto pink paper containing absolutely no explanation of how to play underwater rugby. It did, however, contain a couple of out-of-focus black and white pictures of guys conspicuously wearing cup protectors under their Speedos. (At least I think they were cup protectors.)

While I admit to being a bit fuzzy on the rules, I do remember enough high school physics to assume that it would be pretty hard to kick a ball filled with air while standing in the deep end clad in a Speedo and a pair of Cressi Rondines.

This is a sham. I know rugby players. This so-called competition is just an excuse to reenact the fight scene from *Thunderball*. Above water the worst you can hurt opponents is to maybe give them a concussion and a couple of broken bones before the EMTs step in and cart them away to the (relative) safety of an emergency room. In a pool, all bets are off. Start a melee down by the drain and before you can say time out, a couple of players are tied to the bottom of the ladder without their snorkels.

I suppose they'll have John Madden doing the play by play from an Atlantis submarine. He'll have to hold the chalkboard up to the window to diagram the plays, and while the spectators may have some difficulty deciphering his commentary, "Whap! Whap! Whap!" should still come through loud and clear.

Still, I can see there's a need for something people can do when there are no mantas around to play with. Even Jacques Mayol gets bored swimming breath-hold circuits in a pool.

UNDERWATER YAHTZEE: The challenge here is just to get the dice in the cup while wearing quarter-inch gloves. The first one to actually toss the dice without losing them on the white sand bottom wins.

SPEARGUN ARCHERY: This would solve two problems at once as it would also give machos something to do with their Arabalettes other than kill fish. In the advanced round, participants would hunt little plastic battery-powered diver tub toys with powerheads.

SWORDFISH JAVELIN THROW: Instead of lolling about on the back of a boat swilling brew and making lewd jokes while trolling, this would introduce some real athleticism into the sport of billfishing. First, of course, you have to catch a swordfish with your bare hands. That should pretty much eliminate most of the competitors. What happens after that might be hard to score but it would certainly give new meaning to "agony of defeat."

TWISTER: A real test for all that new "streamlined" gear we've been hearing about. Some special equipment would be required—the plastic playing surface would have to be weighted and tiny little duck-foot fins would definitely be the way to go.

OPEN-WATER VOLLEYBALL: Let's see how good these "Olympic" athletes really are by taking water volleyball out of the pool and onto the reefs. I'd like to see them try to spike the ball while fighting a six-foot surge.

SHARK DARTS: Divemasters in the Bahamas have discovered that if you grab a shark by the tail and twist it around on its back, the sharks will just hang there without fighting. Of course, once you turn their tail loose, they take off like a torpedo on angel dust. The skill here would be to compete for accuracy and distance. I don't know what kind of targets should be used, but there must be some underwater rugby players who would volunteer.

After all, there's not a snowball's chance of any of them becoming WIMPs.

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T R A V E L

Deep in Honduras's Bay Islands, the diving heats to a fevered pitch on Roatan, Guanaja, Utila and Cochino Grande. But the only sweat you'll break will be trying to win our "Name That Weird Critter" contest on page 33. ~By David Taylor

#### SIX-PAGE PULL-OUT MAP

Honduras A-Go-Go: your take-along guide to affordable adventure in the Bay Islands.

A DIFFERENT DRUMMER
Somewhere in the Pacific there's a door to the unknown. Grateful Dead percussionist Bill Kreutzmann found it. ~By Wes Skiles



Tobago TIME
Surrounded by mantas and magic,
Trinidad's equatorial sibling is as far downisland—and as laid back—as you can get.

-By David Abrahamson

#### DIVE THE FLORIDA KEYS: AN RSD TRAVEL GUIDE

Your essential summer guide to big deals, big resorts and big dives in the world's most popular diving destination.

### WEEKENDER: NARRAGANSETT BAY, R.I.

Ride the summer Gulf Stream in America's first vacation playground. ~By Phaedra Hise

**WEEKENDER: SARASOTA, FLA.**Big fish and big cars collide along Florida's Cardigan Coast. ~By Nick Lucey

#### TRAVEL DESK

How to keep electronic fingers from picking your pocket; the best dive travel deals in the Florida Keys. ~By Nick Lucey

#### EQUIPMENT

FESTIVAL OF LIGHTS
Our exclusive ScubaLab™ test shows the best way to light up your life. ~By Jon Hardy and John Brumm

GEAR BAG
The Nemesis Nitrox computer is here; Sea
Vision's optical aids for photographers, hunters
and the far-sighted.





Code Red for little orange fish: California considers how to save the garibaldi. ~By John L. Stein

**ASK A MARINE BIOLOGIST: CLOSE ENCOUNTERS** 

How to pet a shark without losing a finger. ~By Richard Martin

U C Α

**ADVANCED SCUBA: IS NITROX FOR YOU?** What a gas: Some say snake oil, some say salvation. But has nitrox lived up to its hype? ~By Bret Gilliam

**DAN NEWSLETTER: CHAMBER DONATION PROGRAMS—SHOULD** YOU OR SHOULDN'T YOU!

Sure you have insurance. Here's why you should support local chambers, too.



#### P H O T O G R A

PORTFOLIO: ROMANCING THE SURF I was a mollusk love slave. Exclusive pix of the sea's sexiest couples! ~By Paul Humann, Eric Hanauer and Andy Martinez

VIEWFINDER: THE BIG PICTURE VIEWFINDER: THE BIG PICTURE
The fisheye solution—we wet test Sea & Sea's new 12mm lens for the Nikonos. ~By Rick Sammon



#### DEPARTMENTS

Code of honor, Rambo Wanna-Be's, and Jon Hardy's death wish.

SEAVIEW The Environmental Air Force takes to the skies, Barbie does her dive tables, and our Legislative Action Card tells you how to get involved.

THE WATER PLANET

Surprise, surprise—drift nets may be on the way out. But is it really the last act for these infamous Curtains of Death?

INDEX TO **ADVERTISERS** 

**DIVE TRAVEL** MARKETPLACE

CLASSIFIED



How to get there and get wet in:

The Florida Keys	Pg. 24, 65-72
The Bay Islands	33-38
Revilla Gigedo Islands	46
Tobago	51
Narragansett Bay, R.I.	74
Sarasota, Fla.	76



Cover photography by Franklin Viola, taken in Taveuni, Fiji.

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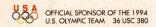


It even goes so far as to have many of its plastic parts coded for the day when they can be recycled.

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#### WORD OF HONOR

I'm writing in regard to an article in your March 1994 issue entitled "Cape Lookout, N.C." by Jim Sommers.

In the opening paragraph of this article, Mr. Sommers alleges that German submariners massacred the survivors of the ships they sunk "with fusillades of machine-gun fire." This is absolutely untrue and is nothing but the repeating of the old wartime propaganda.

There is only one case of a U-boat commander shooting survivors in the water. He was hanged for it, and it was nowhere near the U.S. coast. The German navy fought as clean and honorable a war as they could under the circumstances and should not be associated with their ruthless counterparts in the Waffen-SS. They have even gained the respect of merchant seamen and naval personnel who fought them.

I hope for the sake of proper history and to avoid insulting the integrity of certain people that Mr. Sommers will do better research and some thinking before he puts pen to paper.

MARC J. COHEN FORT LAUDERDALE, FLA.

Jim Sommers responds: You're exactly right about the honor of German sailors; and I apologize if the sentence was misleading. "Finishing them off with machine-gun fire" was meant to refer to the ships, not the survivors. When torpedoes didn't finish the job, the U-boats would sometimes use their deck guns-after survivors had cleared the area.

For the record: Between January and July of 1942, the Germans sank 120 ships in an area they designated the "Eastern Sea Frontier," which stretched from Maine to Georgia. It is believed that 2,409 men, women and

children were killed during those seven is to blame for the decimation of our months alone.

#### WIMP OUT

I hope your "modest proposal for a WIMPs society" ("Inside Scuba Diving," April 1994) was lighthearted rather than tongue-in-cheek. Sign me up. I want the card and a T-shirt (extra long and a choice of peach, teal or coral, please).

> BARBARA LAMM BOULDER, COLO.

#### FRIEND OF THE WHALES

I was very pleased when I read "Journey to the Encantadas" by Lance Leonhardt (March 1994). I have always loved whales and learning about them. Recently I watched a very disturbing program on TV about Japanese whaling. I remember one Japanese saying, "It's the best meat we have on the market." If they keep killing whales, they will disappear and our oceans will not be the same. It's just like Mike Kelly said, "once you get to know all the fish, it's hard to understand why we do the things we do. And it's easy to get mad, too." Well, I'm very mad and I want the whaling to stop. I think public attention should be brought to whales and other sea creatures that are endangered or could be very soon. Thanks for an awesome issue. (If you think whaling should be banned call 1-800-932-IFAW and tell them how you feel.)

> SARAH WILDES OXFORD, MAINE

#### RAMBO WANNA-BE'S

As a working diver for a coastal North Carolina dive operation, I am compelled to comment on what has emerged as a controversial topic. Are we really to think that our spearfishing oceans' resources? Hardly. Our area has witnessed, firsthand, the absence of Atlantic sand tiger sharks-victims of offshore commercial fishing.

However, your reader poll (February 1994) does expose a problem that is becoming more visible the senseless killing of fish for the fulfillment of ego or a few snapshots. While the majority is not to blame, I am sure many of us can recall shaking our head in disbelief as a Rambo Wanna-Be rolls over the side with a 50-inch, four-banded gun, or a pneumatic rifle equipped with a laser sight, to end the life of a one-pound spadefish. As divers we are fortunate to be in a sport that is not heavily regulated. This may very well change. Let's hunt to feed ourselves, not our egos.

> ERIC ZINCZENKO JACKSONVILLE, N.C.

#### TO ON THE LINE

From our toll-free reader comment line (1-800-DIVE LINE):

I think Jon Hardy is giving out some wrong information. Somebody wrote in confused about why it was such a big deal about weight belt quick-release buckles ("Q&A: Under Pressure," March 1994). He wrote that it makes no difference which way the buckle goes, that it's OK for a left-handed diver to use his primary hand. I was under the impression that the reason there's a standard right-hand release is so another diver always knows which way it will be. When I find Ion Hardy someday floating under water and unconscious, how will I know which way his weight belt comes off to send him to the surface?

Hint: It'll be either the right or the left. 6

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### Somewhere Over the Ocean marine mammal, bobs in

ldon Bolton of the Institute for Marine Sciences in Roatan peers through the window of a low-flying Cessna 337. A recent storm had flooded the local rivers, flushing

sediment, pesticides, detritus and dead fish into the blue Caribbean Sea. There is no sign of life. Then ... "Manatee!"

A giant sirenian, over 1,000 pounds of happy

the surf, chewing lazily on a water hyacinth.

The plane is piloted by Ed Coffman, one of the 120 volunteers who offer their private airplanes and years of experience to the "Environmental Air Force" called Lighthawk, founded in 1979 and based in Santa Fe, N.M. Ed glances at the Global Positioning System (GPS) unit mounted on his instrument panel and reads out the exact coordinates of the manatee sighting. He has spent the past week flying scientifically designed transects, crisscrossing the coastal waters of Honduras. With a little more data, marine biologists will be able to provide a first-ever cen-

VOLUNTEER PILOTS GIVE SCIENTISTS, CONSERVATIONISTS AND POLICYMAKERS A BIRD'S-EYE VIEW OF ENDANGERED RESOURCES.

sus of the region's marine mammals. To the

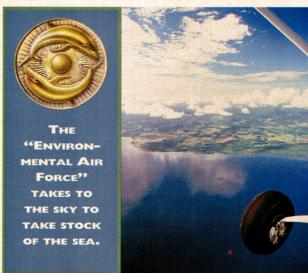
north, Lighthawk pilot Alan Mikkelsen has almost completed a survey of the entire coast of the Yucatan Peninsula, from Villahermosa to Belize. "Position!" shouts Pedro Ramirez of Amigos de Sian Kaan every time he spots a water bird between the streamers trailing from the wing struts. Pedro smiles as he makes a note of

the location of three jabiru storks, soaring over the Sian Kaan Biosphere Reserve on their magnificent 12-foot wingspans. They pass through clouds of pink flamingos, white ibis, pelicans, cormorants and herons.

With 15 full-time staff members, four airplanes and an annual budget of more than \$1 million, Lighthawk's goal is to use the power of flight to further the work of environmental scientists, government agencies and conservation organizations from Alaska to Chile. Staff and volunteer pilots have flown Greenpeace activists along the entire length of the U.S. Gulf coast, helping to pinpoint sources of chlorine pollution. Presently, Lighthawk is tracking the migration of the elusive and endangered blue whale, gathering valuable demographic data while signaling to scientists on dive boats who move in for a closer look.

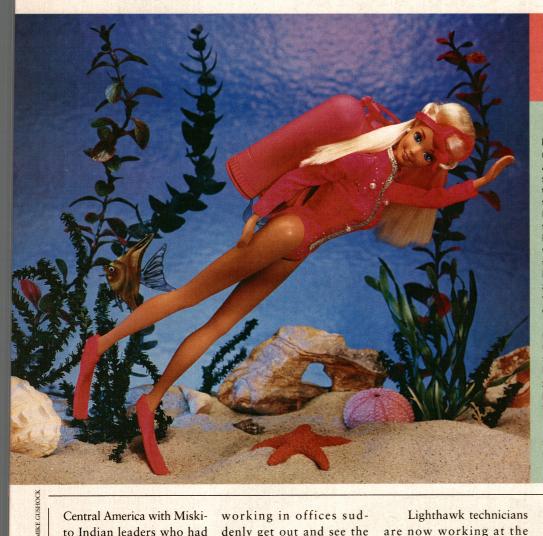
For 15 years, Lighthawk has flown members of Congress and other opinion leaders over America's national forests, exposing deforestation and illegal mining practices, and has had a direct influence on public policy reform throughout the Americas. Lighthawk recently flew over the lagoons, rivers and rain forests of the Mosquito Coast region of





CARL HANSEN/LIGHTHAWK

What's new, what's noteworthy under water



#### "DIVE TABLES ARE Tough!"

he's been a surgeon, a Marine sergeant, a baseball player, an astronaut and a model, but America's favorite plastic superteen gets her first taste of compressed air as the new "Swim and Dive Barbie" giant strides into toy stores this year. The battery-operated scuba version of the best-selling toy in the world scissorskicks at the twist of a dial and blows bubbles under water-all without a hint of smudged mascara.

Mattel Inc., Barbie's maker, expects the tubready dive doll to be a big seller on the wet-toy market. "One of the things little girls love to do with Barbie is play with her in the water," says Mattel spokeswoman Lisa McKendall.

After all, who wants to bathe with a Marine sergeant?

Central America with Miski-

lands and fishing grounds from the air. They also introduced the region to the Ministers of both Nicaragua

"Something very powerful happens when people used to working in offices suddenly get out and see the areas that they are

responsible for protecting," says Charles Luthin, director of Lighthawk's Latin American program. "It's like a conversion experience. Their whole perspective

changes."

Lighthawk technicians are now working at the cutting edge of technology, linking digital video cameras mounted on the bellies of their planes to GPS units that triangulate off satellites, providing the exact location of every pixel of photographic information. Each pixel has a specific spectral signature that can be analyzed to determine the species of tree photographed or the health of a coral reef. Using computers, Lighthawk overlays this information onto cruder Landsat images, creating maps that show where fragile ecosystems are changing most rapidly, a valuable tool for all groups working to protect the environment.

—JAMES D. GOLLIN For more information on Lighthawk, contact Charles Luthin at P.O. Box 8163, Santa Fe, NM 87504; (505) 982-9656.

to Indian leaders who had never seen their traditional

of Environment and Honduras.

FEED WILLY

A blue whale will eat as much as 70,000 tons of food in its lifetime.

### seaview

## Lights, Camera, Flipper!

he 1970s nail-biter Jaws might have been even more terrifying had Steven Spielberg employed Beaver and Sake behind the camera. The pair of college film students can free dive to 1,200 feet, swim almost as fast as dolphins and demand only fish for a day's work. That's because they're sea lions, and soon they may be capturing footage of whales in the wild that filmmakers and scientists can only dream of recording.

San Jose State University whale specialist James Harvey and graduate student Jennifer Zeligs are teaching the pinnipeds to closely follow whales and videotape their mysterious behavior. "Dolphins would have been the best option, but they're much more difficult to trans-

port," says Harvey, who explains that the highly trainable sea lions have learned to board trucks and boats on command for extended rides. The animals have also adjusted to swimming with the harnesses that will tote their video gear.

Harvey landed a \$15,000 National Geographic Society grant for his idea about two years ago and succeeded in wooing sea lion expert Daniel Costa of the University of California at Santa Cruz to the project as well. Costa's interest in sea lion physiology during repeated deep dives meshed perfectly with Harvey's video scheme, and the two have been anxious to see how Beaver and Sake per-

form outside their Santa Cruz training facility.

Unfortunately, that's where the researchers ran into trouble.

"We're ready to do open ocean training now, but we need freezers for the animals' food and sea pens so we don't lose them," says Harvey, who is scrambling for funds to continue the project. Already, lack of finances has forced him to dismiss two of the original four sea lions from the research. —PAUL KVINTA

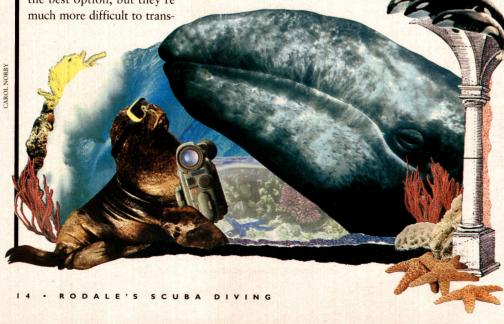
If you can assist the sea lion project, call Harvey at the Moss Landing Marine Laboratory in California at (408) 755-8669.



## Human Shark Bait

anta Cruz dive operator Jon Cappella expected some sharks. He did not expect to be in the center ring of a circus involving NOAA, the National Marine Fisheries Service, the EPA, the local media and an angry posse of California surfers.

Over New Year's weekend, Cappella took a dozen paying customers out on his first—and possibly last—great white shark dive charter. Aboard the 65-foot Pacific Star, the divers spent three days chumming and waiting in cages for the white sharks in the waters off Ano Nuevo





Island, home to an elephant seal rookery and popular among white sharks. Problem is, the waters also offer surfers a superb playground, with some of the best winter waves in California.

Cappella arrived home in bliss after multiple encounters with the big fish. The feeling didn't last. First came the video footage, which had been made available to a local news station. It showed fearsome white sharks

tearing away at bait and hungrily eyeing divers in cages. Reaction from the local surfing community was loud and swift. Cappella says people compared his chumming Ano Nuevo waters to the wreck of the Exxon Valdez. He

received death threats. Federal agencies called. And soon, it seemed, the whole world was against him. He prudently volunteered to suspend the white shark trips temporarily.

Chumming for and diving with white sharks

is nothing new in Australia. But it is in California, where, ironically, Carcharodon carcharias was given protection from commercial fishing on the same weekend as Cappella's inaugural white shark trip.

For Cappella, this added legal questions to already vexing philosophical issues.

Surfers and some shark experts think that regular chumming might habituate sharks to an area and that the sharks might become frustrated when this food source disappears. In theory, this could incite the sharks into behaving aggressively-possibly toward a Santa Cruz surfer.

For its part, the National Marine Fisheries Service is trying to determine whether Cappella's white shark dive charter broke any laws. Under examination is the chumming, which Cappella said consisted of 95 percent fish and fish parts and 5 percent mammal blood. In these waters, it is illegal to discharge mammal waste without an EPA permit.

At press time, the NOAA general counsel was

SOUNDINGS

SEE CREATURE

Some species of

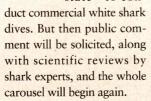
scallop possess as

many as 100 eyes;

however, their vision

is very fuzzy.

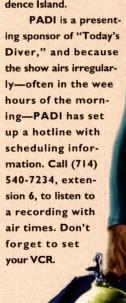
reviewing an enforcement report to determine whether Cappella's actions were legal. If they were, NOAA says Cappella will be allowed to request a permit—likely the first in the state-to con-



—JOHN L. STEIN

aster than a speeding grouper! Able to leap tall barrel sponges in a single bound! Ex-Superman Christopher Reeve traded his trademark red cape for a wetsuit and the silver screen for the small screen as host of several installments of "Today's Diver," a half-hour program that began airing on the ESPN and ESPN2 cable networks in January.

The show is aimed at divers of all experience levels and features segments on dive destinations, safety, education and environmental awareness. Reeve hosted the first four half-hour episodes from Bonaire and Ed Begley Jr. is featured in the next four from the Bahamas' New Providence Island.





## seaview

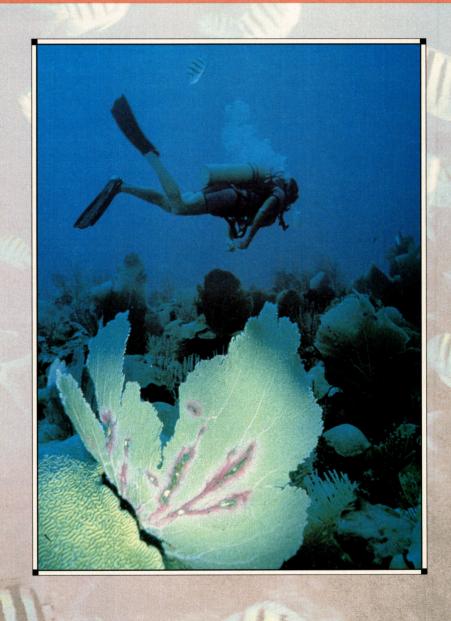
#### LEGISLATIVE ACTION CARD

Location	Action	Purpose	Current Status	Next Steps	What You Can Do
U.S. coastal states	Beaches Environmental Assessment, Closure and Health (BEACH) Bill	Amendment to Clean Water Act would compel the EPA to enforce previously enacted coastal water quality standards and to provide monitoring and public information for safeguarding the health of ocean users.	The BEACH Bill has been approved by the Senate Committee on Environment and is now pending in the House of Representatives.	American Oceans Campaign is still collecting signatures to urge Congress to pass the BEACH Bill and for President Clinton to sign it into law. AOC is also lobbying Congress to make the standards mandatory; at present the standards in the House version are voluntary.	Immediately request, fill in an return a BEACH signature petition from American Oceans Campaign, 235 Pennsylvania Ave. S.E., Washington, DC 20003; (800) 862-3260.
California	NOAA court appeal to restrict use of jet skis in Monterey Bay National Marine Sanctuary	Restriction is intended to benefit otters, birds and other wildlife in the sanctuary.	Due to a court ruling, jet skis are presently unrestricted in the sanctuary. NOAA is committed to appealing the ruling but has declined to reveal when an appeal will be made.	NOAA will file an appeal when documentation is complete and substantial enough to prevail in court.	NOAA does not need public opinion, but reliable data (e.g. studies, photos and videos) that demonstrate negative impact of jet skis within the sanctuary may be useful. Send to: Monterey Bay National Marine Sanctuary, 299 Foam St., Suit D., Monterey, CA 93940.
American amoa, Guam, orida, Hawaii, Northern Mariana llands, Puerto Rico, U.S. /irgin Islands	Clean Reefs Campaign	Campaign seeks to convince the EPA and the governments of four states and five Caribbean and Pacific territories to adopt stricter standards for nutrient loading of coastal waters, which damages coral reefs.	Clean Reefs Campaign is still soliciting petition signatures, along with resolutions from environmental groups, in support of the project.	To obtain 10,000 signatures and as many resolutions as possible from environmental groups. Project ReefKeeper will bring scientific research and public support (via signatures) to bear in ongoing discussions with regulators.	Write for a free Clean Reefs Campaign kit, which include a signature petition, to Projec ReefKeeper, 2809 Bird Ave., Suite 162, Miami, FL 33133
California	California Assembly Bill 2812	Extends the partial protection to the garibaldi conferred by AB 1788 (see "World View," page 19), mandating a complete moratorium on the taking of the fish until the year 2000 and designating it the state marine fish.	The legislation is being considered by the Assembly Ways and Means Committee.	If it passes out of Ways and Means, the bill will be sent to the Assembly Floor; once an Assembly version is hammered out, the bill must go through the same process in the Senate.	California voters can write short, pointed letters of support for the garibaldi as th state marine fish to your owr assemblyman or to Assemblyman Bill Morrow, The State Capitol, Room 211: Sacramento, CA 94249.
Florida	Florida Keys National Marine Sanctuary	Finalize and approve the first management plan for the Florida Keys National Marine Sanctuary. The plan stipulates which activities are permissible within the sanctuary.	At press time, environmental impact and management plan drafts were expected to be completed this summer.	Public comment period lasts for up to 60 days after the plan is released.	Request a copy of the Florida Keys National Marine Sanctuary management plan from NOAA Sanctuaries and Reserves Division, SSMC4, 12th Floor, 1305 East-West Hwy., Silver Spring, MD 20910. Send written comment to the same address.
ederal waters	Amendment to the Coral and Coral Reefs Fishery Management Plan.	Amendment would ban live rock collecting in the Gulf of Mexico and South Atlantic waters, primarily to reduce the impact from aquarium collectors.	The South Atlantic and Gulf of Mexico Fishery Management Councils are negotiating. The Gulf Council wants to allow collecting (including chiseling) of 400 tons per year until 1996, then ban collecting if aquaculture is developed. The South Atlantic Council wants to ban all collecting north of Miami immediately and to allow loose rock collecting in other zones until 1996.	An agreement should be reached by summer 1994 and the regulation should take effect by January 1995.	For a free Live Rock Campaig action kit, write to Project ReefKeeper, 2809 Bird Ave., Suite 162, Miami, FL 33133.
Hawaii	Hawaiian Islands Hump- back Whale National Marine Sanctuary	Protects Hawaii's humpback whales, their habitats around Maui, Lanai, Molokai and por- tions of Kauai and the Pailolo Channel.	A series of technical consultations with local, state and federal agencies to address particular concerns of each is complete.	Environmental impact statement will be released to the public in early fall 1994; 60-day public comment period follows.	In fall 1994 request a copy of the draft environmental impac statement/management plan fc the Hawaiian Islands Humpback Whale National Marine Sanctuary from NOA. Sanctuaries and Reserves Division, 1305 East-West Hwy., Silver Spring, MD 20910. Send written comment to the same address.
Washington	Northwest Straits National Marine Sanctuary	Proposed sanctuary would protect a wide variety of marine and bird life in heavily traveled straits north of Seattle.	Governor Mike Lowry has requested a draft environmental impact statement from NOAA. A local committee will help develop the statement.	The draft environmental impact statement should take a year to complete.	Address comments regarding the Northwest Straits Sanctuary to Bob Nichols, c/c Governor Mike Lowry, P.O. Box 40002, Olympia, WA 98504.

ADVERTISEMENT

## BERMUDA

WHERE TO DIVE



#### PARADISE ACCESSIBLE

he island of Bermuda is, in reality, a collection of more than 100 small islands and islets, with the seven major ones connected by bridges. About 21 miles long, it's an easy place to get around, assuming there's no great hurry. The speed limit is only 20 m.p.h. and cars can't be rented. Most visitors

PHOTO BERMUDA DEPT. OF TOURISM

get around by motorbikes, which are available at all major hotels. Driving on the left takes some getting used to. Thankfully, local motorists display a courtesy Americans find just short of amazing. Alternate transportation includes taxis, buses and the scenic ferry.

The diving season

starts about mid-March and runs through November, although some operators stay open past Christmas if the weather is good. On Bermuda's northern and western reefs, the visibility in the summer is about 100 feet. Where the reef line comes much closer to the shore, on the southern and eastern reefs, summer visibility averages 80 feet.

The dive shops all describe their two-tank trips as a wreck and a reef dive, but it would be difficult to dive any of Bermuda's wrecks without seeing a great deal of reef. A common misconception about the Bermuda reef system is that since it is the northernmost place in the western hemisphere where coral reefs grow, there isn't very much of it. Nothing could be further from the truth. The Gulf Stream insulates to the north and west minimizing weather

extremes, crediting Bermuda with it's subtropical status. In the

height of summer (July through September) water temperature is in the mid-80's and an eighth-inch shorty is sufficient. During the season's peripheral



months of April, May, most of June, October and November, a full quarter-inch wetsuit is recommended. Air temperature rarely gets above 90 degrees in the summer, or below 60 degrees in the winter. With the noticeable exceptions of larger branching corals and basket sponges, Bermuda's reefs are home to nearly all the biota found around her Caribbean neighbors to the south. Some species, like the blue angelfish, are even more prolific. Soft corals thrive in Bermuda waters, and, of course, you'll encounter schools and schools of the island's namesake fish, the Bermuda chub.

Still, as vibrant and healthy as the reef is, Bermuda is ultimately a wreck diver's island. Even before Sir George Somer's flagship, Sea Venture, was separated from it's flotilla and ran aground in a storm in 1609, Bermuda's hazardous barrier reef had been snaring more than it's share of "turtles in the net," as early shipwrecks were called. This is evidenced by the remains of the San Pedro, a 350-ton merchant nao of the 1596 Spanish fleet, and another Spanish nao, the San Antonio, which floundered off the southwestern reefs in 1621. Both wrecks were discovered by local salvor Teddy Tucker in the 1950's and exam-

ples of their provenance and precious cargo can be seen today in the Treasure Room of the Bermuda Maritime Museum.

What used to be a



navigator's nightmare is now a wreck diver's dream come true. From sites strewn with ancient cannons, to fully intact modern day freighters, Bermuda has something to interest every wreck diving enthusiast. Because most of Bermuda's shipwrecks went down on shallow reefs, divers generally enjoy a longer bottom time, unlike places like Chuuk or Florida's West Palm Beach where many wrecks are 100 feet plus. In Bermuda, there are no wrecks deeper than 80 feet frequented by the dive operators. Many divers have logged their first ocean water dives on Bermuda shipwrecks. That's not to say that Bermuda wreck diving is strictly for novices. Dives like the *Hermes*,



Triton and Tugboat King are all penetrable dives and usually explored with a guide.

Another inescapable characteristic of Bermuda diving is the cavernous labyrinth, interwoven like decorative stitching throughout the fabric of the reef. These formations provide the spectacular arches, tunnels and canyons found on dive sites such as The Southwest Breaker, Tarpon Hole, Cathedral Cavern, NASA Point and Hole In the Wall. These dives aren't technically cave dives, but they are normally guided and lights are handy, although not required. The crags and overhangs permeating these areas harbor large schools of jacks and fry, groupers, tarpon and spiny lobsters.

Night dives are offered regularly during Bermuda's peak season. It is bottom time well spent. Crustaceans seem to be everywhere. The eyes of shrimps and coral crabs shine out of the reef like duel pinpoint laser lights. The insomniacs of the reef, the moray eels, can always be seen showing off their teeth. Sleeping parrotfish can be seen motionless, protected by the web-like cocoon they spin around themselves at dusk. Extended polyps give hard corals a soft, fuzzy, out of focus appearance. Sea fans, corky sea fingers and sea rods are generally overlooked by divers at night, but a close inspection will reveal all sorts of "midnight

#### BERMUDA'S TOP TEN SHIPWRECKS

Aristo 250' Norwegian steamer bound for Bermuda with a general cargo (including a vintage fire truck, the remains of which are still on the forward deck), sank under tow during a rescue effort., still very much intact because it sank away from the breakers. Max. depth 50'.

Constellation & Montana The Constellation was an American, four-masted schooner, just over 200 feet long. The wreck was made famous as the inspiration for Peter Benchley's novel, *The Deep.* Bound for Venezuela with a general cargo, it wrecked on the western reefs July 31, 1943. The Constellation now lies not more than 50 yards from an English built paddle-wheel steamer known as the *Montana*. Built to penetrate the Union blockade during the Civil War, it was 236 feet long and was wrecked in 1863. Max. depth 30'.

Cristobal Colon 480' Spanish luxury liner ran aground on Oct. 25, 1936. Supposedly bound for Vera Cruz, Mexico, crew members later stated the real port of intent was Havana, Cuba. Today, prevailing thought is that the Cristobal Colon was smuggling Loyalists out of Spain during The Spanish Civil War. It is the largest shipwreck in Bermuda. Max. depth 55'.

Hermes 160' U.S. built freighter which was abandoned in Bermuda. Finally donated to the Bermuda Dive Association, it was scuttled off the south shore May 15, 1985. Sitting upright on the bottom, the Hermes is the most intact wreck in Bermuda. Max. depth 75'.

Minnie Breslauer 300' English freighter en route to New York from Portugal with a cargo of fruit, wine, cork and lead. Wrecked on New Year's Day 1873, the Minnie was on its maiden voyage. Max. depth 70'.

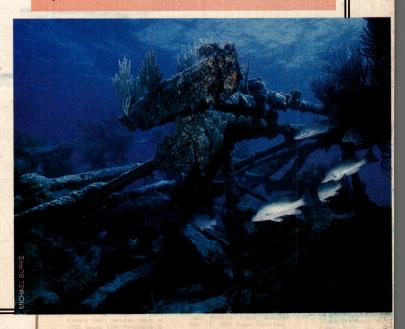
North Carolina 150' English sailing barque which frequented Bermuda during voyages between the U.S. and the U.K. Ran aground to the southwest on New Year's Day 1880. The cargo of cotton was salvaged. Her picturesque deadeyes and bowsprit make the North Carolina one of the most photogenic wrecks in Bermuda. Max. depth 40'.

Pelinaion 385' Greek cargo steamer bound for Baltimore with a hold full of manganese ore. The ship's captain was unaware St. David's Lighthouse was blacked-out due to the war. The Pelinaion sank less than a mile from shore. Massive swim-through arches on either side of the wreck. Max. depth 70'.

Pollockshields 323' German built steamer captured by the English in World War I. Ran aground during a hurricane on September 7, 1915 on the south shore. Loaded with munitions when it wrecked, many shell casings and projectiles are now cemented into the reef on site. These armaments are considered unstable and should be left alone. Max. depth 30'.

Rita Zovetta 50' Italian freighter bound for Baltimore with a cargo of manganese ore. Sank during near hurricane conditions off the east end on Feb. 11, 1924. Semi-penetrable wreck with many nice swim-throughs. Max. depth 65'.

Taunton 228' Norwegian registered freighter wrecked to the northeast on Feb. 24, 1920. Bound for Bermuda with a load of coal from Norfolk, Virginia, the Taunton had made many similar runs in her 18 year life span. Very photogenic bow section; perfect novice wreck dive. Max. depth 40'.



riders" hanging on as the soft corals sweep back and forth tirelessly. For those into macro photography, hangers-on like flamingo tongues, arrow crabs and banded coral shrimps afford wonderful photo opportunities.

To date, Bermuda diving hasn't been promoted in a big way, mainly because the island has so much to offer along with diving. The pink



sand beaches, ocean side golf courses and genteel British-style culture are world renowned. Even during the

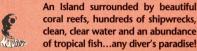
recent recessionary years, acquiring a mid-summer hotel reservation took some planning. Lately, Bermuda has been catching on with participants of one of the fastest growing sports in the world. Two new dive shops have opened in the last three years, bringing the total to six. A comprehensive mooring system is being implemented to mark and protect the dive sites. And, most importantly, commercial fishermen are no longer allowed to harvest fish and lobsters in traps.

All of the dive shops have their regular customers who know a good thing when they see it. Most of them say much the same thing as Paul Foley from Long Island, New York. "Getting immunization shots and lugging camera equipment and dive gear halfway around the world to an exotic dive destination is great—once in awhile. But I can get to Bermuda without the jet lag. When I sign up for a dive trip, I know that it's going to be professionally run. And, after a good day's diving, I can go out to a nice restaurant for dinner." Amen to that.



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offers boat rentals, waterskiing and parasailing. Both locations offer snorkeling equipment rentals and retail sales and service of major dive equipment lines including Dacor,

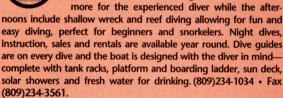


Sherwood, Scubapro and Cressi-sub. Multi dive packages, referral certifications, resort courses, and night and deep dives are also available. (809)238-2322 (Southhampton) (809)295-9485 (Hamilton) • Fax (809)295-3416.

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#### **BLUE WATER DIVERS**

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#### **FANTASEA DIVING**



Fantasea Diving, associated with the Elbow Beach Resort and Palm Reef Hotel, is a PADI dive center located in the center of Bermuda a 10-minute ferry, taxi or scooter ride from Hamilton. Fantasea is a full retail and dive ser-

vice facility offering one-tank, two-tank and night dives. They offer all levels of certification including resort courses and open water referrals. The shop, which offers the latest Sherwood equipment and Henderson suits, is open from 7:30 a.m. to 5:00 p.m., March through November. Other services offered by Fantasea include whale watching in April, snorkeling, waterskiing and underwater camera rentals. (809)236-6339 • Fax (809)236-8926.

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#### **SOUTH SIDE SCUBA**



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CIRCLE NO. 82 ON READER SERVICE CARD

For information about special scuba packages in Bermuda, contact the following: The PADI Travel Network

(800)729-1234 ext. 2 The Bermuda Department of Tourism

(800)821-1199

COVER PHOTO: MICHAEL BURKE INSET: BERMUDA DEPT. OF TOURISM MAP: TEDDY TUCKER

## Collection Plate



ear your reef-loving heart on your bumper, not your

Member groups of the Coral Reef Coalition are spearheading a petition drive to create a specialty license plate to fund the Water Quality Protection Plan for the Florida Keys National Marine Sanctuary. Signatures of 8,500 people willing to purchase the

coral reef plate must be collected before it can be submitted for approval by the Florida legislature. The plate, featuring a reef scene painted by environmental artist Wyland, will cost Florida drivers \$15 more than regular plates. The extra dough

will go to fund water cleanup efforts.

Although the Water Quality Protection Plan is a required part of the sanctuary's management plan, funding has been hard to come by. For fiscal 1994, Congress budgeted \$3 million for the program, but appropriated only \$189,000. And the promise of an additional \$186,000 from the EPA's budget has dwindled to \$10,400.

The Wilderness Society's Debbie Harrison hatched the idea for the specialty plate as a painless way to supplement funding for the plan. "Anytime you can provide for environmental natural resource protection without using tax dollars, you've got a win/win situation," says Harrison.

For a copy of the petition, Florida drivers should contact Reef Relief, P.O. Box 430, Key West, FL 33041; (305) 294-3100.

## Wanted: Reef Divers

ake your next dive count: The Reef Environmental Education Foundation (REEF) is seeking volunteer divers for its 1994 fish survey projects.

Five of the REEF field surveys will be held in the Florida Keys National Marine Sanctuary, where teams will gather baseline data for the recently established Sanctuary Preservation Areas located throughout the 200-mile reef tract. Each area is designed to protect a specific reef and is critical for sustaining important marine species and reducing conflict between con-

sumptive and nonconsumptive user groups.

Collected information will provide sanctuary biologists a valuable species list and inventory record as they begin to implement new sanctuary policies. Such data are currently lacking for this and other marine wilderness areas but are essential in guiding future regulatory decisions. The pioneering surveys are funded by Rodale's Scuba Diving and the Nature Conservancy.

No prior experience in fish identification is necessary, but all volunteers are expected to be certified divers. Each five-day field survey includes training in fish identification and survey techniques. REEF personnel, graduate students and marine

biologists from the University of Miami will assist in the collection of data. Methods used in the Keys will serve as models for volunteer fish surveys in managed coral reef parks throughout the Caribbean and Bahamas in 1995 and 1996.

REEF fish field surveys offer volunteers a chance to dive, to learn and, most importantly, to make a significant contribution to preserving our marine environment.

#### REEF FISH FIELD SURVEYS-1994

June 6-10 MonFri.	Key Largo—\$290 includes diving and seminars. Contact REEF (305) 451-0312.
June 20-24 MonFri.	Dry Tortugas—\$590. Live-aboard Spree departs from Key West. Price includes food, diving and seminars. Contact REEF (305) 451-0312.
July 18-22 MonFri.	Key West—\$290. Includes diving and seminars. Contact REEF (305) 451-0312.
August 1-5 MonFri.	Islamorada—\$290. Includes diving and semi nars. Contact REEF (305) 451-0312.
August 15-19 MonFri.	Marathon—\$290 includes diving and semi- nars. Contact REEF (305) 451-0312.
Sept. 3-10 SatSat.	Belize—\$1,750-\$1,850. Live-aboard Wave Dancer. Contact Lisa Diaz, American Express (800) 752-9438.
Sept. 19-23 MonFri.	Cayman Islands—\$800 includes lodging, diving, seminars. Instructors Seminar/Advanced Field Survey. Contact REEF (305) 451-0312.

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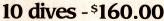


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## **COLLECTORS' ITEMS**

BY JOHN L. STEIN

he garibaldi darts nimbly beside its nest at 40 feet, weeding debris from the velvety blanket of red algae it has cultivated for its eggs. This vibrant and colorful fish

almost out of place in the kelp forest. Against the water's muted green, the bright-orange garibaldi stands out like the Great Pumpkin. But there's danger in its beauty.

Veteran divers around California's Santa Catalina Island say the plucky garibaldi ain't what it used to be. The reason that its numbers are down, divers contend, is that over the past 20 years the endearing little orange fish has been bagged at an escalating rate by commercial aquarium collectors. The recent upturn in garibaldi hunting that began roughly five years ago is tied to the corresponding rise in the popularity of saltwater aquariums. Although the California Department of Fish and Game can't—or

won't—say how many garibaldi have been removed from Catalina waters since then, the environmental group Ocean Futures says that 8,000 to 15,000 were removed last year alone.

The garibaldi's territorial nature makes it relatively easy to capture with dip nets. After spawning, male garibaldi pull sentry duty at the nest. "The garibaldi are very obvious. They live on the rocky nearshore reef habitat and will defend their territory," says Dave Parker, a marine biologist with Fish and

Game. "They don't usually leave at the first sign of a diver."

Although garibaldi are mostly caught with hand-held nets, other methods—including drop nets, hook and line, traps and slurp guns—may be used legally, provided you have the necessary permits. There is no catch limit on garibaldi in most California waters.

Once captured, the fish are transferred to onshore holding tanks for shipment to distributors and collectors. The largest markets are overseas—90 percent of the fish are shipped to Japan and China—and the rest are sold to collectors in the U.S. and elsewhere. Juveniles are

favorite targets because of their iridescent blue spots and aquarium-compatible size. The garibaldiare also able to withstand relatively disparate water temperature fluctuations: from a cool 55F in winter to 70F-plus during summer months. This allows them to survive—for a while anyway—in aquariums heated for tropical fish.

But surviving and thriving are different matters. "I have yet to see anything in scientific literature documenting that the garibaldi survive well at high aquarium temperatures (80F to 85F) often encountered in warmer climates," Bodega Marine Lab

Divers fight to save California's signature fish, the brilliant Garibaldi, from overzealous aquarists. aquaculturist Wil Borgeson says. "In warm water, the fish hyperventilate because there's very little oxygen in there. Their metabolism is being driven through the roof by the high

JUNE . 19

temperatures, which makes their naturally aggressive behavior even worse."

Back on the reef, leave it to divers to notice that what was once there now isn't. Thanks in part to a small but vociferous group of divers, biologists and lobbyists, California Governor Pete Wilson last year signed into law Assembly Bill 1788, which restricts the season and location in which garibaldi may be taken by licensed collectors. Although conservationists welcome these restrictions, they provide neither full-time nor full-range protection for the garibaldi.

Concerns about the garibaldi's future have prompted California divers to work with Assemblyman Bill Morrow (R-San Juan Capistrano) in sponsoring a bill, AB 2812, that recognizes the garibaldi as the state marine fish, a new designation. Such official status, if granted, will afford the garibaldi yearround protection throughout California until the year 2000. (Although the garibaldi would keep its "state marine fish" title, it will lose some of its protection in 2000-when AB 2812 would sunset and when part of the protection conferred by AB 1788 is scheduled to end—unless a new law to protect the fish is passed in the next five years.)

But the garibaldi also serves as metaphor for the larger global issue of

#### GRAB A PEN, SAVE A FISH

AB 2812 would add an important layer of protection for the garibaldi. It would also send a message to regulators that the coastal environment is economically valuable as diver territory—more valuable than the cash value of the creatures within it.

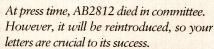
Address urgently needed letters of support for designating the garibaldi as California's state marine fish to the Honorable Bill Morrow, The State Capitol, Room 2111, Sacramento, CA 95814; attention: Dan Chick.

For more information or to obtain signature petition forms, contact American Oceans Campaign, 725 Arizona Ave., Suite 102, Santa Monica, CA 90401; (310) 576-6162, or Ocean Futures, Suite 603, PO Box 2705, Huntington Beach, CA 92649; (714) 840-5455.

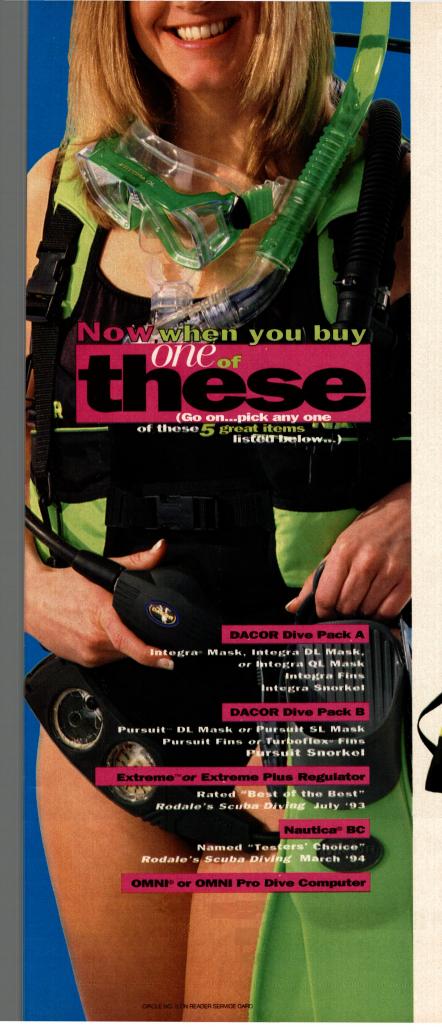
free enterprise versus the environment. Which is more important: the right to engage in commerce or the need to protect natural resources? Diver-oriented Ocean Futures and other environmental groups such as American Oceans Campaign contend that the two can coexist, and that the garibaldi need not be depleted to provide profit. Here's how: The sport diving industry for the most part serves people who want nothing more than to observe marine life. For that privilege, California divers spent some \$104 million last year in dive shops. This, Ocean Futures says, proves that marine life has more value in the ocean than in an aquarium.

Value is a curious thing. It can be used to define economics, aesthetics, morals and any number of other subjects. In the fight over marine life, however, economic value often prevails. So it's heartening to see the economic engine reversing direction to protect a little orange fish that many divers prize for its aesthetic value alone.

We need more of that.









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The American paradise. United States Virgin Islands

CIRCLE NO. 89 ON READER SERVICE CARD



## MONEY, MONEY

BY NICK LUCEY

oney may or may not make the world go 'round, but one thing's for sure: You can't go 'round the world without it. What kind of money should you take with you? We

recommend a four-pronged approach:

→ Cash still talks, especially in remote places where plastic is an exotic substance. While there's no exact science in deter-

mining your daily needs, one basic rule applies—the amount of cash you bring depends on the destination and your spending habits. Bring more cash if you plan on hard-core duty-free shopping in Freeport and less if you're roughing it in the Florida Keys. You'll also need cash for tips and a taxi when you arrive. If you can, buy a small amount of local currency before you leave home to avoid exchanging money at the airport. The best rates are almost always found at banks.

→ Traveler's checks are still your best bet for everyday use—they're widely accepted, extremely safe and help you follow a travel budget to the pfennig. Some can be purchased in the currency of your destination, though many merchants throughout the world accept the U.S. dollar. Hint: Cash traveler's checks before you shop or dine to avoid merchants who tack on profit-enhancing service fees and unfavorable exchange rates.

→ Credit cards are also safe and easy but you must beware of unex-

pected service fees at the point of purchase and of the date your purchase is actually posted with the credit company. A delay in posting, often intentional, may mean a less favorable exchange rate that could be

exchange rate that could be considerable. Example: You're on a Red Sea dive vacation and you just gotta have that Berber rug you stumble across in the Casbah. You charge it on Monday, but Ahmed waits until

Don't let
exchange rates
and credit card
fees pick your
pocket before you
ever leave home.



AYNE VINCENT

Thursday, when the Egyptian pound is stronger, to post the sale—costing you more dollars than you expected.

→ Automatic Teller Machines have made getting cash in some places as easy as remembering your personal code. But never rely on ATMs as the sole means of obtaining money while traveling. Not everyone is part of the electronic global village. And before you go, have your bank send you a brochure outlining international ATM locations where your bank card will be accepted (just remember to pack the brochure). To save interest and processing charges, use your ATM, not your credit card, to get cash. Overall, ATMs give you a favorable exchange rate.

When all is said, done and paid for, should you cash in those extra pesos for dollars before heading home? If it's not too much, and you'll be returning to that country soon, save foreign currency for the next trip. If you're not going back for a while, exchange. Only major currencies like the franc or yen can be redeemed back home. Because it can fluctuate wildly in value, holding foreign currency for a long time is never a good idea.

#### FLORIDA KEYS DEALS

Travel specialists have worked up some impressive deals—your key to diving Florida's coral archipelago. Here's what's hot:

Caribbean Adventures Dive Travel, (800) 934-dive, (305) 433-dive. June 1-Sept. 5, 1994: Five nights accommodations at Amy Slate's Amoray Dive Resort, Key Largo, Fla., two-tank afternoon dive daily, luxury air-conditioned

#### ANTI-ANTHRAX FAX

The Centers for Disease Control (CDC) in Atlanta offers a fax information service packed with important health facts for travelers. By calling (404) 332-4565, callers are faxed information about immunization, vaccine recommendations, disease risk and outbreak bulletins and prevention tips for every corner of the globe. Faxless? Try the CDC's recorded information line at (404) 332-4559.

rooms with cable TV, ceiling fans, refrigerator—\$299 per person, double occupancy (prices lower after Sept. 6; rental car from Miami and night and



DIVERS CAN JOIN A RESEARCH TRIP TO HELP PROTECT THE QUEEN ANGELFISH AND HER SUBJECTS IN HONDURAS'S BAY ISLANDS.

deep diving available).

► FLAGSHIP TRAVEL, (800) 329-8388, (407) 734-4775. April 1-Sept. 30, 1994: Five days, four nights accommodations at Kelly's Waterfront Motel, Key Largo, Fla., 10 dives including charters and tanks and weights—\$300 per person, double occupancy.

► PADI TRAVEL NETWORK, (800) 729-7234 (ext. 2), (714) 540-7234 (ext. 2). April 5-Dec. 24, 1994: Three nights accommodations at Eden House, Key West, Fla. (includes taxes), two days diving including tanks and weights, four days economy car rental-from \$299 per person, double occupancy (car and room upgrades available). Sept. 6-Dec. 23, 1994: Three nights accommodations at Marina Del Mar Resort and Marina, Key Largo, Fla. (includes taxes), two days diving including tanks and weights, four days economy car rental—from \$276 per person, double occupancy (car and room upgrades available). Available through PADI Dive Centers.

► Transmarine, Inc., (305) 447-1917. Three nights accommodations, dive trips including tanks and weights—from \$182 per person, double occupancy.

▶ UNDERSEA EXPEDITIONS, (800) 669-0310, (619) 270-2900. June 1-Sept. 1, 1994: Five nights accommodations at upscale Key West guesthouse with veranda and garden view, full breakfast

and complimentary happy hour, three days of two-tank boat dives including tanks and weights, dive boat transfers, all taxes—from \$389 per person, double occupancy (special packages available for gay/lesbian divers).

#### HOT, NEW DIVE VACATIONS

SEMINARS AFLOAT

The Nekton Pilot is center stage for two underwater photography seminars hosted by Mike Bacon, and a marine biology seminar hosted by David Wilhelm.

Bacon will lead the gang to Cay Sal Bank for wall and blue hole diving June 26 to July 2, and island hop to San Salvador, Bahamas, July 17 to 23. The first trip costs \$1,350 per person and the second \$1,495; both include diving, tanks and weights, accommodations and meals and snacks.

The Andros barrier reef is backdrop for Wilhelm's coral reef biology seminar June 5 to 12, and costs \$1,350 per person.

For more information, contact Nekton Diving Cruises at (800) 899-6753.

#### ► EXPEDITIOUS ADVENTURE

Divers can help the movement to designate Honduras's Bay Islands as a marine sanctuary by participating in Oceanic Society Expeditions' scuba research trip June 25 to July 2. Divers will conduct coral species surveys and

assess species abundance.

Call Oceanic Society Expeditions at (800) 326-7491 or (415) 441-1106 for more information and prices.

ALL IN THE FAMILY

Palau Pacific Resort is planning two family weeks, from June 18 through 28 and June 26 to July 6. The price is

#### No Habla? Nada Problem.

AT&T's new Language Line Services provides on-line interpretation in 140 languages 24 hours a day, seven days a week. Subscription to the service dramatically lowers price per minute, but nonsubscribers can access the service, or receive more information, anytime by calling Language Line Services' toll-free number: (800) 628-8486.

\$4,700 to \$5,876 and is based on a family of four. The package includes accommodations in garden-view or oceanfront deluxe rooms, breakfast and lunch daily, excursions, airport transfers and taxes and gratuities. Activities are scheduled for the kids.

For more information contact RASCALS IN PARADISE at (800) U-RASCAL or (415) 978-9800.

CHILD'S PLAY

Hawk's Cay Resort & Marina in Duck Key, Fla., is offering parents an alternative to traditional day care with Pirate's Club activities for the kids June 4 through Sept. 5.

The program costs \$25 per child, \$18 on weekends and holidays, and provides kids with an action-packed day of fishing, dolphin interaction and boat races.

Call HAWK'S CAY RESORT & MARINA at (305) 743-7000 for more information.

DIVERS MEETING DIVERS

The Undersea Singles Club announces its new trip schedule, including excursions to Cozumel, Bonaire, Grand Cayman, Roatan, Costa Rica and the Bahamas.

The club matches single, certified divers to share accommodations and save money, but is by no means a dating service. Membership is \$30.

For more information, send a self-addressed, stamped envelope to the UNDERSEA SINGLES CLUB, 1007 N. Federal Hwy., Suite 236, Fort Lauderdale, FL 33304.



#### S. GROSS

- PADI Open Water Diver
- Certified 1989
- 50 logged dives

"I'm really proud of all the dives I've made, but I never thought anybody would notice. It's nice to be recognized for my accomplishment!"



- PADI Rescue Diver
- Certified 1986
- 500 logged dives

"I got into the habit of logging dives during my Open Water Diver course and I'm glad I kept it up. Now when I take a dive trip, my experience shows. With my Adventure Plus Card and my log book, nobody ever treats me like a beginner!"

## Recognition for the experienced diver— The Adventure Plus Card

PADI certification cards are available for 50, 100, 200, 350, 500 and 1000 logged dives in combination with all PADI certification levels. We also have recognition cards for all other divers and decals for 25 logged dives.

Available at your PADI Dive Center

The PADI Diver Recognition program and the Adventure Plus Card are part of the Adventure Log 1000.





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## Unfortunately you can't spend all your time down here.



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Sunset Beach Hotel... on Bonaire's finest beach with dive center, watersports and tennis courts. Casual beachside dining at the Sunset Terrace with daily all-you-can-eat BBQ Buffet. Rooms with two double beds or one king-size bed, A/C, fridge, safe, telephone and cable TV. Tel: 1-800-328-2288 (US and Canada), Fax: 407-682-6000, P.O. Box 333, Kralendijk, Bonaire, NA. 599-7-8291/8448

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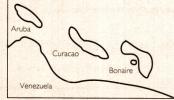
Buddy Beach and Dive Resort is a brand new luxury accommodation at seaside with a beautiful reef right in front of Buddy's. Excellent for dive groups and individuals with very good prices. Personalized services, where you are not just a number. Own car rental on site. 1-800-359-0747 / 1-800-786-DIVE.

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Divi Flamingo Beach Resort & Casino offers air-conditioned guest rooms and studios, two freshwater pools, a lighted tennis court and excellent seaside dining. Peter Hughes Dive Bonaire has a versatile fleet of dive boats, underwater photo and video instruction and 24 hour film processing. For information, rates and reservations: Divi Hotels Inc., 2401 N.W. 34 Ave., Miami, FL 33142. Tel: 800-367-3484 / Fax: 305-633-1621.



CIRCLE NO. 42 ON READER SERVICE CARD



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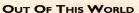
discover hidden pleasures



#### New-and Unusual-Products

Mix it up with a new nitrox computer; shrink sharks with corrective mask lenses.

RIBAUDO & COMPANY INC.



Astronauts in training with NASA aren't the only ones who can now get their hands on the Nemesis Nitrox dive computer from Cochran Consulting Inc.

The civilian version of the Nemesis Nitrox, like the standard air model, consists of a tank unit and a wrist unit that communicate with each other via a wireless link, eliminating a high-pressure hose. All dive data is computed by the tank unit, which attaches to your regulator's high-pressure port. Transmission to the wrist unit is digitally coded to help ensure interference-free signals up to

3.5 feet. Dial-A-Mix, the programmer for the Nemesis Nitrox, lets you set the computer for any oxygen level between 21 percent (regular air) and 50 percent.

In addition to the

other multilevel dive computers (bottom time, depth, nodecompression lim-

its, tank

pressure decompression stops) the

pressure, decompression stops), the Nemesis Nitrox also tracks current levels of central nervous system oxygen toxicity and OTU (oxygen toxicity units) dose—two important considerations when breathing nitrox.

By plugging in the optional DCI-I personal computer interface, you can modify the Nemesis's algorithm to compensate for increased breathing during cold or arduous dives, to change measurement units from imperial to metric, and to obtain detailed log information on the last 350 dives, including your breathing efficiency. Suggested retail: \$950. For more information contact COCHRAN CONSULTING, INC., at (800) 856-DIVE.

#### I CAN SEE CLEARLY NOW

Come on, you *really* think that barracuda was six feet long? What? Can't read the numbers on your camera's ASA/ISO dial anymore?

SCUBAPRO'S WRIST-MOUNTED SG-12 ELECTRONIC DEPTH GAUGE, \$160 (TOP); PARKWAY'S STEP-IN THERMO FLEECE SUIT, \$235 (LEFT); THE NEMESIS NITROX DIVE COMPUTER BY COCHRAN CONSULTING, \$950 (BELOW).



To help meet the challenges of underwater optics, SeaVision has developed two new lens systems: the DeMag and the Gauge Reader. The DeMag lens counteracts the magnification of objects under water, allowing spearfishermen and photographers, especially, to view fish and other objects at their actual size. The Gauge Reader mask has built-in bifocals for the sometimes tiny numbers on compasses, pressure gauges and camera settings.

Both are available with or without SeaVision's color-correcting filter system and offer changeable lens rims in an array of colors for the fashion-conscious diver. Depending on options, retail prices range from \$139 to \$179. For more information, contact SEAVISION at (800) 732-6275.



SEAVISION'S CORRECTIVE LENS SYSTEMS IMPROVE UNDERWATER OPTICS, FROM \$139 TO \$179.

#### FOR DEPTH INFO ONLY

CURTIS BOGGS

Divers who want the accuracy and readability of digital instruments without investing in a dive computer should check out Scubapro's SG-12 electronic depth gauge.

After automatic activation, it displays accurate, easy-to-read depth information throughout the dive, recording maximum depth and dive time, and warning of ascent rate violations. After the dive, the SG-12's memory tracks your max depth, bottom time and surface interval for up to six dives.

The SG-12 is available in a wrist mount (suggested retail, \$160) or console (suggested retail, \$168) module. Call SCUBAPRO at (800) GO-SCUBA

for dealer information.

#### A LITTLE MORE COMFORTABLE

Warm-water comfort, sleek design, freedom of movement and durability are the hallmarks of Parkway's new Thermo Fleece step-in suit.

The suit has an abrasion-resistant nylon and Lycra outer shell and a Lycra velour lining that sheds water easily and dries quickly, making it comfortable to wear between dives or for other water activities. A polyurethane middle layer adds warmth and a windproof, "breathable" barrier. Its step-in design includes elastic cuffs, foot stirrups and a lanyard attached to the zipper located on the back of the suit.

The Thermo Fleece is available in men's (small to extra-extra large) and

women's (sizes 6 to 16) sizes and the suggested list price is \$235. Call PARK-WAY/POSEIDON, (908) 721-5300; fax (908) 721-4016.

#### SMART DIVE

Sea Hunt's Mike Nelson never had it this easy. Desert Star Systems has combined navigation, communication, dive status and decompression computing functions in a software-driven instrument, the

DiveTracker.

Packed in a rugged aluminum housing are a powerful processing system, plenty of memory for software installation and data storage, and a sonar modem for through-the-water communication and navigation. Desert Star Systems calls its software packages Dive-Code—programs that allow you to leave behind your dive slate, dive sonar, underwater telephone and sonar transponder. There's DiveCode for mixed-gas decompression, mission supervision and data recording. Don't see what you want on the shelf? No problem, Desert Star Systems will customize a DiveCode for you. Want to pass the time while hanging out on your decompression stop? You can play a computer game that has been loaded onto your DiveTracker.

A DiveTracker unit ranges from \$1,600 to \$3,600, depending on the features desired. Contact Marco Flagg, DESERT STAR SYSTEMS, at (510) 829-3300; fax (510) 829-9796.

#### COMPUTER TALK

J.W. Fishers' popular Proton 3 towed marine magnetometer is now available with a RS232 computer interface. The Proton 3 is a third generation marine magnetometer used to locate iron and steel targets. A built-in printer provides a hard copy of gamma readings with the loran or GPS position coordinates of the target. This same information is available for input into any computer system for mapping or simply for logging information.

The Proton 3 retails for \$6,995. For more information contact J.W. FISHERS at (800) 822-4744; fax (508) 880-8949.

#### SNORKELING PACKAGES

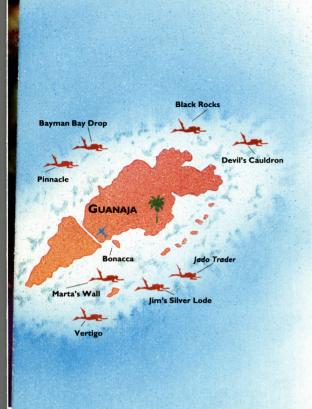
Cruiseline snorkeling combination sets from Sea Quest enable divers to choose a mask/snorkel/fin package to custom fit their snorkeling needs.

The Pro Package consists of the Ventura single-lens mask, the easy-breathing Mirage snorkel and Advantage full-foot-pocket fins. The Sport Package includes the Expo double-lens full-size design mask, a lightweight snorkel and full-foot-pocket fins. The Junior Package features the Expo Jr. mask (a single-lens design for small faces), a Junior snorkel with tube and mouthpiece sized for children and Horizon fins.

Available in blue, neon lime and pink, all packages include the choice of a two-piece set with just mask and snorkel or a full three-piece set that includes the fins along with a mesh carrying bag.

The Pro Package three-piece set retails for \$123, while the two-piece set runs about \$68. The three-piece Sport Package sells for \$75, with the two-piece set retailing for \$44.50. The Junior Package is available for \$67 for all three pieces or \$38 for just the mask and snorkel.

For more information contact SEA QUEST at (619) 438-1101; fax (619) 438-3142.





THE GLASSY SPINES OF A SPONGE BRIT-TLE STAR CLING TO FIRE CORAL, GOR-**GONIANS AND** (ABOVE) SPONGES: THE SEAS AROUND THE BAY ISLANDS ARE KNOWN AS A UNICATE FACTORY. HERE CLUSTERS OF COMPOUND TUNI-CATES LIKE THESE BLUEBELLS (RIGHT) DORN CORALS AND **SPONGES** 



#### **GETTING THERE**

AIRLINES: TACA (of El Salvador), LACSA (of Costa Rica), American, and Continental fly from U.S. gateways (Houston, Miami and New Orleans) to San Pedro Sula, the air hub of Honduras. From there, transfers are direct to Roatan or to the coastal city of La Ceiba for connections to Utila, Guanaja and Cochino Grande. As baggage delays are always a possibility, it's best to carry essential items with you. Scheduled and private charter flights connect the Bay Islands to one another and the mainland. Note: Sahsa, formerly the national Honduran airline, is no longer in service. TACA is now handling Sahsa's routes.

#### **ACCOMMODATIONS**

The interesting collection of resorts, hotels and guest houses scattered throughout the islands most often cater to the dive trade. A seven-day package including dives and meals ranges from approximately \$500 to \$1,050, depending on the resort. Roatan has the most accommodations in the islands, but resorts on Guanaja, Utila and Cochino Grande are surprisingly exotic and comfortable. They run the gamut from air-conditioned rooms with cable TV to hillside bungalows and waterfront cabanas on stilts (there are no high-rise hotels in the Bay Islands). Check with your dive travel specialist for further information.

#### **DIVERSIONS**

ECIAL ATTRACTIONS: The diving itself is a special attraction throughout the Bay Islands, but an especially exciting opportunity offered by the Institute for Marine Sciences (IMS) on Roatan is the Dolphin Discovery Program. This unique experience enables snorkelers and scuba divers to interact with free-swimming dolphins on open ocean reefs. Aside from undersea adventures, you can discover the interior of the islands with great hiking amid orchids, strangler fig trees, oak and pine trees. Check out parrots, monkeys and lush botanical gardens on a nature trail that winds through Bailey's Key at Anthony's Key Resort. The Museum of Roatan at Anthony's Key Resort features artifacts, displays and educational programs about the colorful history and diverse culture of the Bay Islands. At the Carambola Botanical Gardens and Nature Trails at Sandy Bay you'll find a protected iguana and parrot breeding cliff, as well as some archaeological sites dating back to Mayan times. For an interesting day trip, arrange a visit to the ancient Maya city of Copan on the mainland of Honduras. These impressive ruins represent one of the most sophisticated and culturally developed of all the ancient Maya cities. Or if it's true adventure you seek, journey deep into the tropical rain forest on a river rafting trip. RIOS out of La Ceiba offers all-inclusive day trips from the Bay Islands that can be arranged through your dive resort.

GROUND TRANSPORTATION: Roatan is the only island with road and communication systems. A paved road links nearly all the resorts to the island's towns as well as to the airport. On the other islands, transportation is primarily via small boats and water taxis.

SHOPPING: Not much shopping in the Bay Islands; however, the main towns provide a small and interesting selection of local crafts and somewhat primitive art. Independent vendors sell jewelry, seashells and carved wood. Yaba ding dings is local slang for aboriginal artifacts (and not so ancient imitations) such as jade beads, figurines, ceramic whistles and small pieces of pottery.

RESTAURANTS/NIGHTLIFE: Food is generally good throughout the islands, and excellent at many resorts. Traditional Caribbean and Creole cuisine is popular, with fresh seafood, fruit and local produce predominating. Some island specialties include cabbage salads, raisin cakes, coconut pies, dwarf bananas and freshly baked breads. The water is generally safe to drink at all the resorts. There is no real nightlife to speak of in the Bay Islands. This is a place to relax and enjoy the unspoiled natural environment.

OTHER SPORTS: Most dive resorts offer a variety of water sports including windsurfing, sailing, kayaking and white-water rafting. Some resorts offer tennis, bicycle tours, horseback riding, ecotours, archaeological programs, cultural tours, mountain climbing and rain forest treks.

#### JUST IN CASE

EMERGENCY NUMBERS: Police, 011-504-45-1190; fire, 198; ambulance, 011-504-45-1500.

HOSPITALS: Roatan Hospital, 011-504-45-1227; Vicente D'Antoni, located on the mainland of Honduras in La Ceiba, 011-504-43-0593.

**RECOMPRESSION FACILITIES:** A hyperbaric chamber is available at Anthony's Key Resort on Roatan, 011-504-45-1515.

#### FOR FURTHER INFORMATION

For more specific information about the Bay Islands, contact the Honduran Embassy, (202) 966-7702; or the Honduran Institute of Tourism in Roatan, 011-504-45-1559.

## Something Weisd in the Water

Off Utila, Dr. E. R. Gammill, a Florida professor of oceanography, discovered six new species of corals and sponges last year. Around Cochino Grande, Dr. Dick Zingula, a retired paleontologist, recently photographed 30 species of tunicates. "And I'm just getting started," he reports.

Why so many unusual species, so unidentified?

"There's something weird about the water down here," believes Gammill. "I know that sounds unscientific, but the water's color is different and I'm not sure why." He attributes part of the uniqueness to prolific plankton growth that reduces visibility in some areas but promotes the symbiosis between life forms that brings about diversity.

Another explanation is the lack of modern identification work done in the Bay Islands. Many descriptions of the area's unique species can be found only in obscure journals written in the prescuba era when researchers dredged and netted reefs for specimens that were dissected in the laboratory. Few descriptions exist of what the species look like whole and alive. Also, nets and dredges didn't get into recesses or beneath overhangs, and many species are creatures of the night—when oldstyle research wasn't conducted.

The result is that guides produced for more popular areas don't always apply down here, where you see things that seem straight out of some science fiction thriller. Says Zingula, "I've seen anemones whose species I had no clue about." Off Utila, Gammill observed "a long green something that I couldn't even put in a phylum."

The area's uniqueness was recognized in November 1993 by the Honduran government, which announced that all of the Cayos Cochinos archipelago and waters in a radius of five nautical miles will become Honduras's largest marine park, to be patrolled by the Honduran navy. The government is currently finalizing plans with the Smithsonian Tropical Research Institute of Panama to set up a station to study flora and fauna both topside and below. The only permitted activities will be diving, handline fishing by Cayos residents and study by scientists.

Someone better tell them to watch out for "long green things."

-DAVID TAYLOR



DIVERS CAN REESTABLISH THEIR CONNECTION WITH MARINE LIFE BY HELPING DOLPHINS SEARCH THE SANDY BOTTOM FOR FLOUNDER ON AN INSTITUTE OF MARINE SCIENCES' DOLPHIN DIVE AT ANTHONY'S KEY RESORT.

## **Dolphin Daze**

Crowds at marine amusement parks ooh and aah as the dolphins break the surface and sail through hoops. Snorkeling with them offers a closer encounter, but with all the thrill of a petting zoo. The real show is beneath the blue in their true home—several atmospheres below our gaseous, gravity-filled world.

At Anthony's Key Resort on Roatan, you have a unique chance to become part of that world. Bottlenosed dolphins of the Institute of Marine Sciences follow a boat out to a nearby reef where scuba divers wait on the sandy 60-foot bottom. Soon they are joined by *Tursiops truncatus* doing their thing in the wild: hunting for food. They zoom about, fanning coral heads with their tails to flush out a snack, nuzzling in the sand for flounder, zipping to the surface for a quick breath.

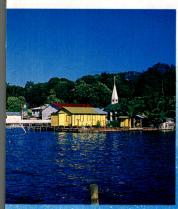
The speed of a dolphin hunting under water is frightening—as fast and inevitable as a guided missile, their sudden turns at full speed impossible to follow. Only on the mind's video replay (or the real thing for \$60) can we slow it down to our reality. After they've had their fill, they come to play with the bubble-blowing guests. Like chummy aunts and uncles at Christmas, these tactile animals can't resist touching and wanting to be touched by you.

Problem: When any wild animal—by definition noble—is turned into an attraction, it is demeaned, no matter how well cared for. But when you see the look on a diver's face or hear the excited chatter afterward, you realize this attraction serves a purpose that the Discovery Channel and environmental group brochures can't. Once you've been at 60 feet with these dolphins and watched their total mastery of that world, their lightning speed and balletic grace, once you've touched them and helped them dig in the sand for food, you're never the same again. A connection is reestablished that got lost a long time ago at the dawn of the Age of Machines, a spiritual connection still found in traditional cultures that often remember in prayer and ritual the animals that give their lives so that humans might live.

We've lost that connection motoring down the superhighway of "civilization"—a clear case of wishful thinking. But little by little, dolphin dive by dolphin dive, we're getting some of it back. Maybe it's not too late: for the dolphins or for us.

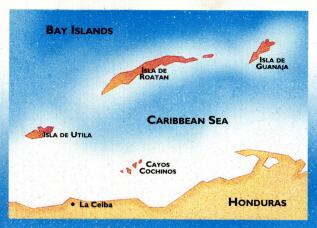
—DAYID TAYLOR

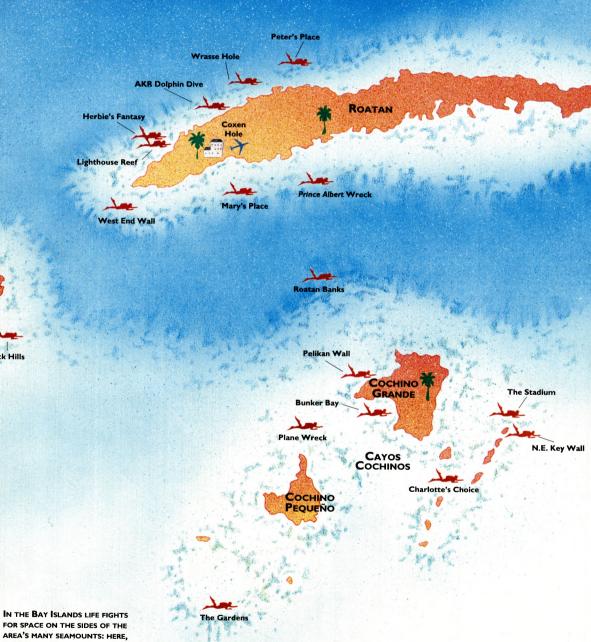




Black Hills

BLUEBELL TUNICATES, A GOLDEN CRINOID AND SEA FAN CROWD CLOSE ON A SMALL CORAL HEAD.





#### **GENERAL**

LOCATION: The Bay Islands—Roatan, Guanaja, Utila, Cochino Grande and some 65 smaller islets and cays—lie 12 to 35 miles off the northern coast of Honduras. This exotic archipelago is a diver's paradise, boasting clear waters and unspoiled reefs that are among the healthiest in the Caribbean. The barrier reef that extends from the Bay Islands north to the coast of Belize is the longest in the western hemisphere.

**TOPOGRAPHY:** The Bay Islands are actually the tips of a submerged mountain range called the Bonacca Ridge. With their core of volcanic rock surrounded by an ancient limestone shelf, the islands are lush and verdant with dramatic elevation changes, spring-fed waterfalls, palmlined sandy beaches and diverse vegetation including wild mangroves, sea grape trees, pines and coconut palms.

HISTORY: The Bay Islands enjoy a rich and varied cultural heritage. Once part of the Mayan empire, they were claimed for Spain by Christopher Columbus in 1502. The islands served as a haven for British pirates such as Captain Henry Morgan during the 1600s, endured British military occupation in the mid-1700s, and were restored to Honduras in 1861. Today they remain under Honduran democratic rule and welcome tourists from all over the world.

LANGUAGE: Although Spanish is the official language of Honduras, English with a British lilt remains widely spoken in the Bay Islands.

CURRENCY: The Honduran lempira has a current exchange rate of approximately 7.5 lempiras to the dollar. U.S. currency is readily accepted throughout the Bay Islands. Credit cards and traveler's checks are accepted at most resorts, usually with an added service charge, but small gift shops and restaurants in the towns and villages often do not accept plastic. Best to ask ahead of time.

DOCUMENTS: A valid passport is required for U.S. and Canadian citizens. A visa is issued for visitors arriving with a round-trip ticket. There is a departure tax of approximately \$15. Entry and exit tariffs can change, so check with your travel agent before departure.

**ELECTRICITY:** 110 volts AC, 60 cycles, using standard U.S. plugs.

CLIMATE: Virtually idyllic weather prevails year-round. Temperatures hover between 77F and 84F with gentle trade winds from the southeast. October to December are the wettest months, but rainfall is generally periodic and of short duration. Sand fleas and mosquitoes can sometimes be a nuisance. Bring a good insect repellent.

**TOURIST SEASON:** The Bay Islands are popular year-round. There is no "high season" or preferred time to visit, so hotel occupancy and rates remain relatively stable throughout the year.

#### DIVING

**DIVING SEASON:** Truly year-round, except for short periods in the winter when occasional storms from the north may bring heavy seas and rain. **WATER TEMPERATURES:** Average water temperature varies from 78F in winter to 82F in summer.

VISIBILITY: Variable, depending upon winds and currents. Windward reefs are sometimes subject to current clouding, otherwise an average of 80 feet. Clarity increases with distance from shore, often exceeding 150 feet.

DIVING SKILLS: With their healthy and extensive reef system, the Bay Islands offer memorable diving for every level of diver. The more advanced are drawn to the spectacular undersea canyons and exhilarating drop-offs that plunge vertically into the endless depths of the Bartlett Trench. Inshore reefs provide colorful coral gardens and dramatic mini-walls just yards from the beaches for less seasoned divers. There are several superb wreck dives and numerous unexplored, virgin seamounts throughout the islands. Available specialty courses include reef ecology, marine life identification, night diving, kayak diving, wreck diving, and photo and video instruction.

MARNE LIFE: The Bay Islands boast the greatest diversity of coral, sponge and invertebrate species in the Caribbean. Around Utila and Cochino Grande, you'll even find many unknown species. Towering monuments of pillar coral, giant barrel sponges, anemones, blue bell tunicates and azure vase sponges are common to most dive sites. In addition to the vast array of brilliantly colored tropical fish commonly seen throughout the Caribbean, there are groupers of every sort—yellowfin, Nassaus, blacks, reds and tigers—since the Bay Islands are an important spawning area for them. Moray eels and graceful spotted eagle rays are commonly sighted, and this is one of the last places in the world where the enormous leatherback sea turtle and manatee can still be seen in the wild. But no visit to the Bay Islands is complete without a night dive. Basket starfish, shrimp, crabs, lobsters and an occasional octopus emerge from their darkened crevices and daytime hiding places much to the delight of night divers.





GUANAJA'S MINI-WALLS ARE STANDING ROOM ONLY FOR SPONGES, SOFT AND HARD CORALS (ABOVE); THE TIDY HOUSES AND CHURCH OF UTILA BAY (ABOVE RIGHT) RECALL A QUAINT ENGLISH SEAPORT ON AN ISLAND INHABITED BY DESCENDANTS OF BRITISH BUCCANEERS.





PHOTOGRAPHY BY DAVID TAYLOR

		Primary Dive Areas	Specialties/ Services	Boats/ Divers	Morning/Afternoon Dives	Gear Lockers	Rinse Tanks
	Bayman Bay Club (800) 524-1823, (305) 370-2120	Jado Trader, Jim's Silver Lode, Black Rock	Underwater photography, wreck diving, kayak diving	42': 16 divers 38': 12 divers 20': 6 divers	MD/I, AD/I T/W	✓ ✓	1
	Nautilus Dive Resort (011) 504-45-4135; fax (011) 504-45-4135 fax (407) 624-3225	Jado Trader, Black Rock, Jim's Silver Lode	Personal service, flexible dive schedules, marine biologist on staff	25': 10 divers 19': 3 divers	MD/2, AD/1 T/W	1	1
;	Posada Del Sol (800) 642-3483, (407) 624-3483;	Over 50 sites around Guanaja	Cavern diving, fish feeding stations, wreck diving	(5) 42': 16 divers	MD/2, AD/1 T/W	<b>'</b>	
	Anthony's Key Resort (011) 504-45-1272; fax (011) 504-45-1140	West end, north shore, southwest side of island	Dolphin dives in open water on reef, dolphin swims in natural lagoon, marine life seminars	42': 16 divers 35': 12 divers 35': 10 divers	MD/2, AD/I T/W	<b>/</b>	<b>/</b>
	Bay Islands Beach Resort (800) 4-ROATAN, (407) 624-5774; fax: (407) 624-7751	Northwest shore, walls, wrecks	Handicapped diving program, night diving, personal service	(2) 41': 20 divers	MD/2, AD/I T/W	1	1
	CoCo View (800) 282-8932, (011) 504-45-1011; fax: (011) 504-45-1013	Southern shore, CoCo View wall, Prince Albert	Barrier reef walls from shore, wall diving, macro life	(2) 50': 22 divers (2) 40': 16 divers	Unlimited diving T/W		1
	Doc's Dive Shop (011) 504-45-1322; fax (011) 504-45-1312	South central side of Roatan	Instructor/dive resort guide training, beach diving	guide training, 27': 2 divers Custom it limited to			1
	Fanatsy Island Beach Resort (011) 504-45-1157, (011) 504-45-1304	North and south coasts of Roatan, Prince Albert, Verde Grande	Variety of diving, full certification center, diving on both coasts	44': 20 divers (4) 44':16 divers	MD/2, AD/I T/W	1	1
	Off The Wall Divers (011) 504-45-1478; fax (011) 504-45-1459	Southside wall, east end, Barbareta and Pigeon Cays	Wreck diving, camp/dive safaris, personal service	46': 20 divers 30': 8 divers 26': 6 divers	MD/I, AD/I T/W	1	1
	Reef House Resort (800) 328-8897, (011) 504-45-2297; fax (011) 504-45-2142	Southeast shore of Roatan, Pigeon Cays, Isla Barbareta	Shore diving, night diving, resort courses	37': 20 divers 28':12 divers	MD/2, AD/2 T/W	1	1
	Roatan Beach Resort (800) 395-5688, (011) 504-45-1425; fax (011) 504-45-1425	Barrier reef	Flexibility, shore diving, night diving	35': 18 divers	MD/2, AD/I T/W	/	1
	Romeo's Resort Dive & Yacht Club (800) 535-DIVE, (011) 504-45-1337; fax (011) 504-45-1594	South shore, north side, west end	Night diving, specialty courses, handicapped diving program	(4) 42': 16 divers 37': 12 divers	MD/2, AD/1 T/W	1	1
	Sueno Del Mar Dive Resort (800) 377-9525; (011) 504-45-1498; fax (011) 504-45-1498	North side, west end, Sandy Bay Marine Park	Personal service, PADI/NASE instruction, small groups	(2) 25': 10 divers	MD/2, AD/I T/W	1	1
	Sun Rise Resort (800) 528-6290, (011) 504-45-1265; fax (011) 504-45-1265	Peter's Place, Herbie's Fantasy, Isle Garden	Night diving	41': 25 divers 29': 16 divers	MD/2, AD/I T/W	1	1
	Tyll's Dive (011) 504-45-1314; fax (011) 504-45-1498	Sites around Roatan	Specialty courses	28': 12 divers 23': 8 divers 18': 4 divers 12': 3 divers	MD/2, AD/2 T/W		1
1	Utila Lodge Resort (800) 948-8452, (011) 504-45-3143; fax (011) 504-45-3209	Utila, Utila Keys	Wall dives, diving with dolphins and whale sharks	41': 20 divers 23': 6 divers (2) 18': 4 divers 16': 2 divers	MD/2, AD/1 T/W	<b>✓</b>	1
GRANDE	Plantation Beach Resort (011) 504-42-0974; fax (011) 504-42-0974, (011) 504-43-1853	Cayos Cochinos	E-6 processing, photography, night diving	36': 20 divers 25': 6-8 divers	MD/2, AD/I T/W	/	1
	Bay Islands Aggressor II (011) 504-45-1518; fax (011) 504-45-1645	Guanaja, Roatan, Utila	Specialty courses, E-6 processing	110': 18 divers 8 cabins			
LINE-ABUARUS	Isla Mia (800) 874-7636, (409) 765-1776; fax (409) 765-1775	North and south shores of Roatan, Isla Morat, Isla Barbareta	Unlimited diving, educational seminars marine ID courses	75': 12 divers 6 cabins			
	Roatan Sail & Dive Charters (011) 504-45-1620; fax (011) 504-45-1620	All Bay Islands	Specialty courses	60': 6 divers 3 cabins			

But the real show-stoppers aren't net-shy fish but the virgin reefs and seamounts that have seen few, if any, divers. Operators on Utila and Cochino Grande boast a cache of virgin sites that can be yours upon request to dive and name. The *Bay Islands Aggressor* visits pristine reefs never dived by anyone but its clients.

Besides the unexplored reefs, the Bay Islands are also home to the greatest diversity of coral, sponge and invertebrate species in the Caribbean. You can spend an entire dive with your head stuck in the reef, camera in one hand, slate in the other, trying to record all the different anemones, tunicates, blennies, corals, leaf fish (*leaf fish?*), crabs, rays and gobies that you've never seen before—and many of which you won't find in the available identification books.

#### Roatan: Gimme That Old-Time Religion

It's been said that traveling is as much a traverse of time as space, that each place has a date. Roatan's is 1960. The old Caribbean, devoid of glitz or Gucci, still exists in the towns and hamlets of

this 49-square-mile spit of jungle. The island's most popular resort is like a summer camp for adults—simple cabins with slated walls open to evening trade winds that play in the wild mangroves and sea grape trees.

But near Coxen Hole, behind the airport facility—a rambling clapboard house with tin roof and picket fence—tourism's dollars are rising in girders of steel. The new terminal is scheduled for completion this year. In some harbors the resort chains are beginning to clone themselves in air-conditioned bungalows. And like a coiled

Boat Dock on Premises	Dive Kayaks	Beach Diving from Resort	Gear Rental	Gear Sales	Gear Repair	LOW S Single	SEASON RA' Double	TES / pp Triple	HIGH SI Single	EASON RA Double	ATES / pp Triple	What's included in all-inclusive packages
/		•	/		1	\$815 plus tax	\$675 plus tax	\$675 plus tax	\$915 plus tax	\$775 plus tax	\$775 plus tax	7 nights, 2 boat dives daily, unlimited shore diving, I night dive, 3 meals daily, use of kayaks, water excursions, beach picnics, hiking, airport transfers
/		1	1		1	\$660	\$560	\$490	\$660	\$560	\$490	
/	/	•	•	1	•		\$950			\$950		7 nights/6 days diving, 3 meals per day, unlimited shore diving, 1 night dive, welcome cocktail, sunset rum punch cruise, beach barbecue and beach picnic, mountain hiking, island boat tour
•		<b>,</b>	<b>'</b>	•	•	\$875	\$725		\$975	\$825		7 nights, 3 boat dives daily, 2 night dives per week, unlimited shore diving, meals, airport transfers, nonmotor water sports, horseback, 2 boat trips daily, welcome cocktail, hotel tax, 2 barbecues, use of kayaks
/	1	/	1	1	1	\$765	\$652.50		\$850	\$725		7 nights/6 days, unlimited diving (night, wreck, wall), meals, airport transfer
/		1	1	1	1		\$675			\$725		
/		/	1	/	1							
/		1	1		1	\$903	\$742	\$665	1,085	\$896	\$833	7 nights/8 days, 3 dives daily, 2 night dives, unlimited beach diving, all meals, gratuities, airport transfers, use of kayaks, canoes, tennis courts, swimming pools
/	1		1		1	\$600	\$550	\$450	\$650	\$550	\$500	7 nights/6 days, 3 dives daily, I night dive, breakfast and lunch daily, airport transfers
<b>✓</b>	1	1	1		1	\$750	\$700	\$625	\$750	\$700	\$625	7 nights, 2 boat dives per day, 1 night dive, unlimited shore diving, tanks/weights, 3 meals per day, airport transfers, use of kayaks and facilities
/		/	-			\$880	\$795	\$695	\$880	\$795	\$695	7 nights, 3 boat dives daily, 1 night dive, beach diving., tanks/weights, meals, welcome drink, airport transfers
/	1		1		1	\$769	\$625	\$575	\$806	\$650	\$600	7 nights, 3 dives daily, 2 night dives, meals, beach picnic, island tour, use of kayaks, airport transfers
<b>/</b>			/		1	\$910	\$630	\$582.75	\$910	\$630	\$582.75	7 nights, 3 boat dives daily, 1 night dive, 3 meals daily, West Bay picnic, airport transfers
/			1		•	\$525	\$393.75		\$525	\$393.75		7 nights/6 days, 3 boat dives daily, 2 night dives weekly, unlimited shore diving, meals, island bus tour, hotel tax, trans- portation to disco one night, jungle hike, welcome cocktail, airport transfers
<b>'</b>			1		1							
	/	/	/	1	<b>/</b>	\$1,000	\$700	\$700	\$1,000	\$700	\$700	7 nights/8 days, 3 boat dives daily, 2 night dives per week, unlimited shore diving, 3 meals daily, use of kayaks, airport transfers, hotel tax
·		<b>/</b>	1		1		\$750			\$750		7 nights, 3 dives a day, 1 night dive, unlimited shore diving, meals
			1		1	\$1,195	\$1,195	\$1,195	\$1,495	\$1,495	\$1,495	7 nights/8 days, unlimited diving, tanks/weights, meals, beverages (alcoholic and nonalcoholic), airport transfers
					7	\$1,095	\$1,095	\$1,095	\$1,095	\$1,095	\$1,095	7 nights/8 days, unlimited diving, tanks/weights, meals
			1		1	1-2 divers \$3,100	3-4 divers \$4,900	5-6 divers \$6,700	(year-round)			7 nights/8 days, unlimited diving, tanks/weights, meals, beverages, airport transfers

spring of macadam, the Bay Islands' only paved road winds around Roatan's steep flanks.

A teenager who's still maturing, Roatan is only a few years from being listed in dive logs right next to Cayman, Bonaire and the Bahamas. "Have you done Roatan yet?" no longer elicits a puzzled stare. But along with its growth, Roatan is feeling the pressure for more island infrastructure, more reef conservation. Siltation from the last extension of the airport runway to accommodate jets trashed reefs 200 yards down current. It was a hard les-

son that helped strengthen the connection between preservation and sustainable tourism: In 1993, the Sandy Bay Marine Park was extended from two miles to 11, and plans are being discussed to make all reefs part of a marine park with mooring buoys.

Payoff: The dive at Wrasse Hole definitely ranks in my personal top five. At Lighthouse Reef near Half Moon Bay, we were again greeted by a turtle. But instead of an eagle ray, this time a pod of dolphins was cruising the wall that drops sheerly from a 20-foot ledge down to 150 feet. Tubs of barrel

sponge and orchards of pillar coral—emblems of Bay Island diving—hung around the wall like they owned it.

The rewards of a well-policed marine park were also on display at Peter's Place, which should be renamed "Grouper Gully." This was the first time I had seen so many species in one place: Nassaus weighing in at 60 pounds, black grouper in the four-foot range. Hanging out for leftovers after the feeding frenzy were yellowfin grouper, reds and tigers. They followed us around like puppies as we glided through canyons and swim-throughs crawling with eels

got a chance. "Whale

He never

shark!" shouted Gringo, deckhand and lookout. The ocean's largest fish was coming to join the dinner party. We skipped the hors d'oeuvres and motored out to swim with Señor Big basking on the surface, all blue skin, polka dots and wide smile. "We've seen as many as five in one day," Jim told me casually.

HE SHY BUT CURIOUS

"PETER'S PLACE" OF

ROATAN-A GROUPER

EEDING STATION THAT DRAWS FIVE DIFFERENT

SPECIES AS WELL

GREEN MORAYS.

If every island has a date, Utila's is definitely 1969: wet and wild, with a feeling that anything can happen and probably will. Since being written up in European travel guides as the cheapest place in the Caribbean to scuba dive, the 16-square-mile island has been awash in continental backpackers—long hair, ragged jeans, Birkenstocks and the quest for spiritual fulfillment scented by ganja. They seem to fit on this unusual island: nearly flat, inhabited largely by a white population of pirate sons and daughters whose last names of Morgan and Jackson, olden-days brogue and tidy houses add just the right note of topside surprise to diving that is also out of the ordinary.

Unlike Roatan, where the action takes place either on the north or south wall, Utila is small enough to be circumnavigated on a two-tank morning dive. This permits the boat to always find a calm side. More importantly, it lets divers sample the island's wide variety of diving venues, from seamounts to lava tubes, shallow reefs amid uninhabited keys to wall diving with the deep-blue gods of the Bartlett Trench.

On Utila, always expect the unex-

dive at Willy's Hole in the Turtle Harbor Marine Reserve, we stopped for a brief snorkel with a pod of spinner dolphins that happened by. Their speed was breathtaking as they flashed below-sleek gray bullets streaking in formation from the surface to 60 feet in the time it takes to clear a snorkel. After the dolphin encounter, the dive was almost anticlimactic. Like most sites on the north side, a shallow 20-foot shelf seamed with sand gullies dropped steeply to 130 feet. 5 A cave at 100 feet held a green moray that got a kick out of surprising divers, like a dog that

sneaks up on your heels and barks. For a marine park, the lack of fish was disappointing.

We found the missing piscine subjects on the next dive at Jak's Bight-a bay divided into a mile-long series of steep spurs and grooves. Very fishy: schools of blue tangs, black durgon, chub and chromis. Porkfish and puffers nosed around the staghorn. The snappers, grunts and rock beauties seemed unafraid. It was here that I really began to notice the high number of rare and unusual species in the Bay Islands: redlip blennies, button tunicates, and a red-striped fleshy coral I've not found in any book.

Back on the dock, Jim was decidedly unimpressed. "Let me show you something really strange," he said. In the waters beneath the lodge, built like most dwellings in the islands on stilts, he pointed to a flat green thing floating under my room. "Big leaf?" I asked. Jim shook his head. "Mat of algae?" Again the negative. I could see no eye, no fin, no nothing except a green surface thin as a leaf. "It's a fish," Jim said. I laughed. He picked up a pebble and threw it in the water. The leaf swam away, like a flounder-sort of. "Maybe a triplefin. Nobody knows what it is," Iim said.

Next day we dived one of the area's hundreds of seamounts, so many that Jim promises a virgin dive on request. Rising from the seafloor at 240 feet to within 40 feet of the surface, this one had no name, but "Toon Town" would fit. Clusters of blue bell and orangeringed (Continued on page 108)

and lobster. Herbie's Fantasy, across from West Bay, is another guaranteed grouper grope, but this time among the elkhorn coral that dominates this shallow reef adjacent to the wall.

Roatan deserves its spot as one of modern dive travel's must-do destinations. Its consistent 100-foot visibility is the best in the Bay Islands, and there are special opportunities like Anthony's Key Resort's Dolphin Dive (see "Dolphin Daze," page 36). But unlike some popular destinations, which have all the topside exotic lure of suburban Florida, Roatan still looks and feels like a different world. You'll have no doubt that you're in the tropics of Central America, a place where men still report to work with machetes, and on Sunday night from the tiny village of Sandy Bay you can hear the sound of church singing: spirited, unaccompanied by any instrument: "I put all my faith in God everyday." Hands clap in rhythm and human voices flow across the water, up the sides of mountains and into the strange heavens. Voices in the wilderness, holding back the dark.

#### **Utila: Wet and Wild**

"Dive at your own risk," Jim Engel, our boat captain and owner of Utila Dive Lodge, told me. "Tiger and make sharks down there." Thirty yards off our bow a miniature squall was in progress: the water churning, gulls diving into the melee. A school of bonito was feeding on small fry. The birds wanted the leftovers, the sharks wanted the bonito. "I'll watch your back," Jim assured me.

THE PSYCHOLOGICAL EQUIVALENT OF A THREE DAY BEARD.



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# A DIFFERENT DRUMME

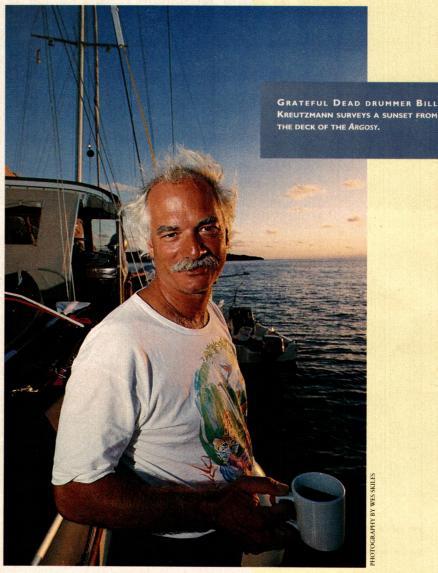
WHEN GRATEFUL DEAD PERCUSSIONIST BILL KREUTZMANN SET OUT TO FIND A PLACE THAT WAS LITERALLY OFF THE MAP, HE SET SAIL FOR MEXICO'S REVILLA GIGEDO ISLANDS. HE AND HIS SHIPMATES FOUND MORE THAN THEY BARGAINED FOR.

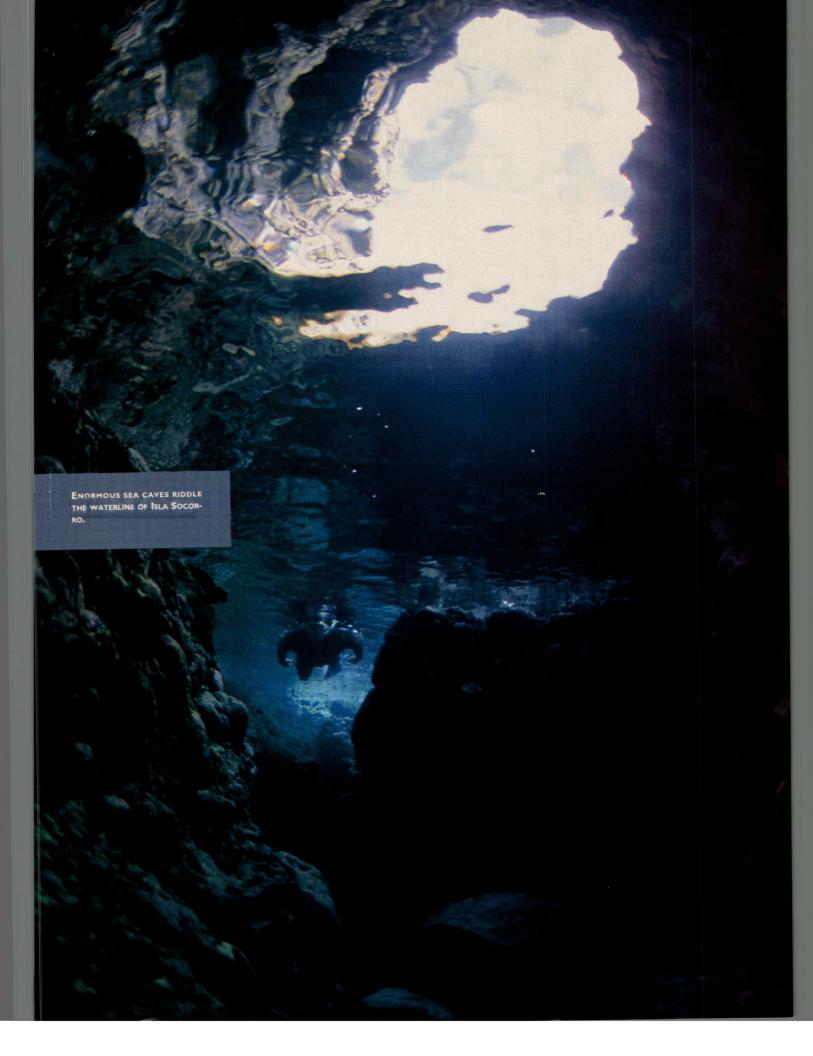


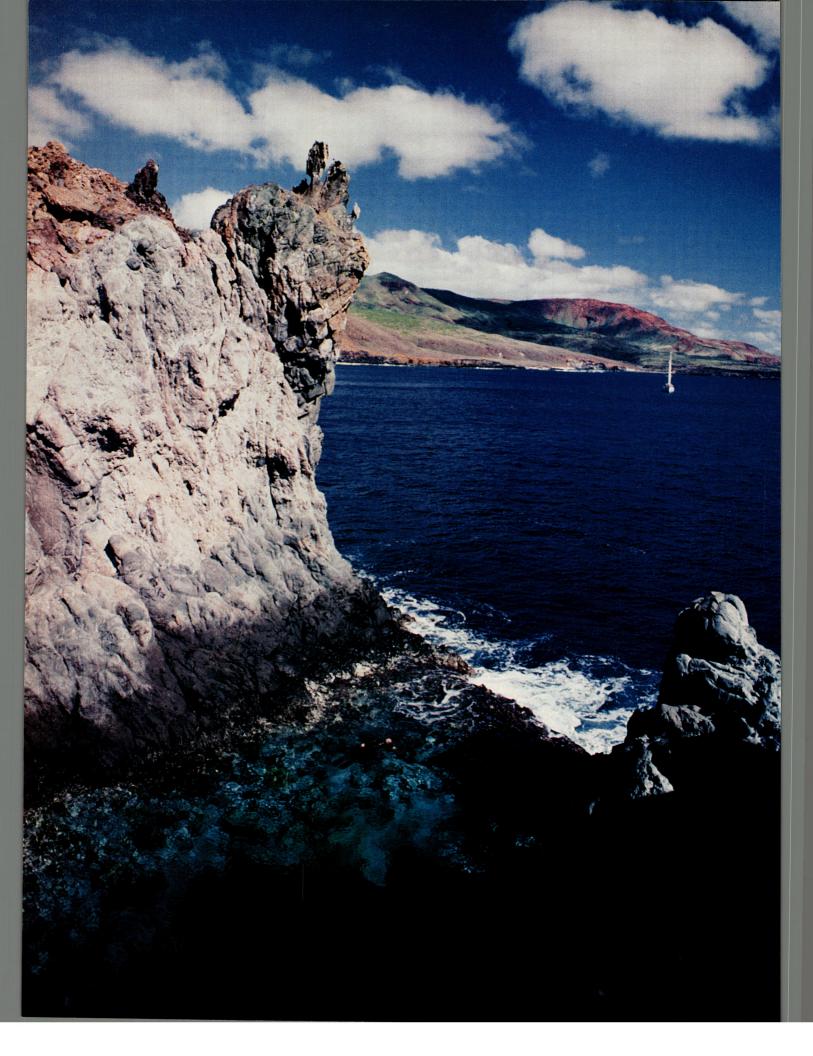


Some waggish readers might think it redundant to say that a member of the Grateful Dead took a trip and had a vision. It's not what you think. As we reported last year, guitarist Jerry Garcia announced he's traded in mind-altering substances for a regulator and now does his tripping under water. This time it was Bill Kreutzmann, the legendary group's percussionist, who wanted to get wet. The trip was the fulfillment of Kreutzmann's dream to interact with big marine animals in a place that was literally off the map. Kreutzmann-"BK" to his friends-wanted to create a video piece that would capture the spirit of exploration in visuals and music. Not a documentary and not a music video, BK's vision was to create a new kind of audiovisual celebration of the Moment of Contact—that mystical instant when human beings go beyond their own boundaries and truly connect with powerful marine creatures and their environment.

Boarding the aptly named wooden sailboat Argosy, we left San Francisco and headed for the Revilla Gigedo Islands—a cluster of lonely seamounts 460 miles off Mexico's Pacific coast. The best-known island of the group is Isla Socorro, famous for sightings of mantas and other









marine mega-fauna. Most of what's known about the other islands is highly speculative—or at least wildly inaccurate. With six weeks to burn, we hoped to unlock some of the Revilla Gigedo's secrets. We did that. But what was more important is what the experience of photographing, mapping and exploring taught us about ourselves.







Which are elevation of more than 3,200 feet, Isla Socorro is big enough to create its own weather. Leaving the *Argosy*, we steered our runabout down the coast, exploring breathtaking coves, caves, bays and lagoons. The water here is by far the clearest ocean water I'd ever seen. As a cave diver, I thought I had died and gone to heaven: Every half-mile or so there was a giant sea cave—some 80 feet from floor to ceiling—teeming with life.

Above water, high tides spilled water into the "Aquariums," captive pools in the rocks high above the waterline. The bigger pools are 60 feet across and 15 feet deep. Exotic fish and corals stroked through the glycerine-clear waters of these microcosmic reefs, small underwater worlds wrapped in protective isolation by rocky walls.

Getting into the pools meant timing a swell and hoping it lifted us high enough to clear the rocks at the lip. Getting out was trickier; BK took a hideous wipeout trying to swim out against a swell.



DAVID WORBEL

#### Dive In

LOCATION AND TOPOGRAPHY: The remote volcanic Revilla Gigedo islands lie about 300 miles south of Cabo San Lucas and 460 miles west-southwest of Puerto Vallarta. The three major islands—Isla Socorro, Isla San Benedicto and Roca Partida—are nothing more than seamount tips in the vast eastern Pacific.

DIVING: Whenever the live-aboards go there. At least three boats—the M/V Baja Treasure (904-722-4574), the Copper Sky (Baja Expeditions, Inc., 800-843-6967 or 619-581-3311) and the Solmar V (Amigos Del Mar, 800-344-3349 or 310-459-9861)—travel to these isolated islands. Call each for dates and prices.

Revilla Gigedo is a Pacific oasis for huge pelagics yellowfin, wahoo, blackfin, jacks, mantas and an array of sharks. The coast is as porous as

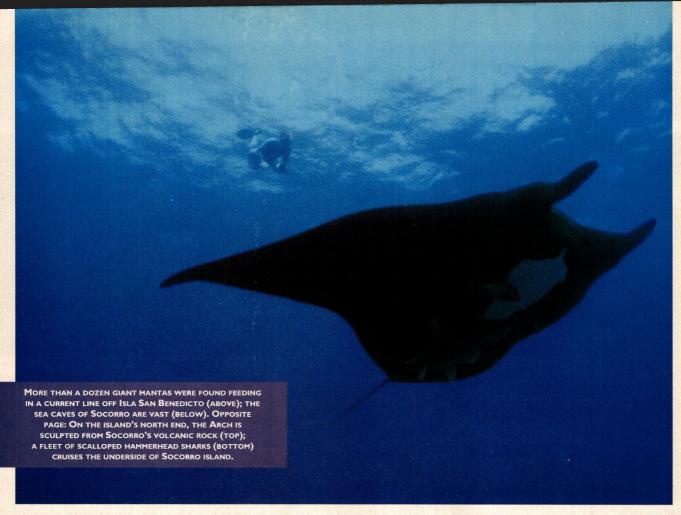
sponge, dented with caves and inlets. The bottomography is just as rugged, consisting of grottoes,



and submerged pinnacles.

DOCUMENTS: Proof of citizenship is required for Americans and Canadians; Brits, Australians and most Europeans need a passport.

FOR FURTHER INFORMATION: For specific information about the Revilla Gigedo Islands, contact the Mexican Government Tourism Office, (800) 44-MEXICO or (212) 755-7261.











n the windward side of Isla San Benedicto, the sea was so rough that at times I thought we should turn back. But BK powered on. The water carried the dark blue signature of extreme deep water. Passing caves, spiky points and islets, we arrived at a point where we could clearly see a current line. Only seconds later, we discovered one of the most unique phenomena I've ever seen: Within the current line, we could see mantas. Not a pair; not a handful. A whole herd-14 to 16 huge animals, the smallest one 16 feet across, flying in formation along the line of flotsam at the edge of the current. Slipping quietly into the water with masks and snorkels only, we joined the show in progress. The mantas gather here to feed on microorganisms, which got their revenge by stinging us. As we filmed for over an hour, the mantas would periodically split off from the group to follow us. By silently free diving down to them, we could actually get caught in their slipstream. The first time I caught one, the sensation was one of not even moving, yet I flew past the other divers.







In our last day at Socorro, we parked the boat behind the point of Cabo Pescaro, but still got wailed on by winds and big seas. There's simply no way to sleep when your boat is catching air every set. The cape is one of those spiritual magnets; you can feel the power from miles away. Large ocean swells swirl and surge

over submerged pinnacles. Under the ripping current, we discovered stacks of pelagics; layer upon layer of jacks, yellowfin, blackfin and wahoo, all hanging out in the current. At 80 feet, we hit dark green, cold water. Angling down, shapes in the hazy distance caught my eye: The familiar pattern of a large school of hammerheads. Seconds later, a cloud of some 50 scalloped hammerheads enveloped us at 130 feet.

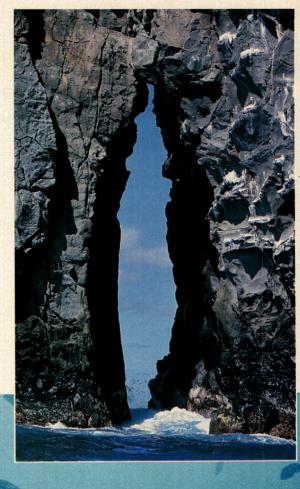
Four days later, we pulled into Cabo San Lucas after 21 days at sea. BK took us to Van Halen's bar, Cabo Wabo, and ironically, Bob Weir of the Grateful Dead was playing a benefit concert. BK decided to join him in a jam and they rocked the place. BK's long, strange trip had taken us to a little-known backwater. And in the end, we wound up where we'd started—BK jamming with Weir and us photographers hoping the images in our cameras could come close to showing the rest of the world what we experienced.



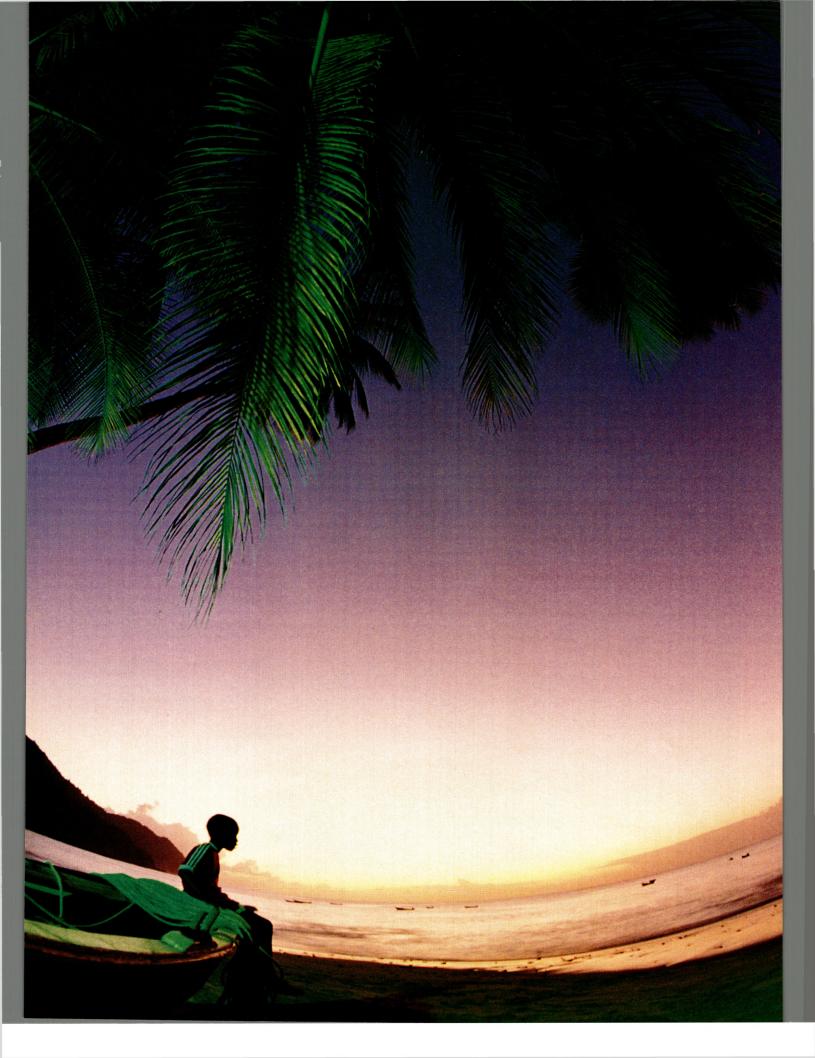




Wes Skiles and Bill Kreutzmann are editing film of their journey for a one-hour television special. A 20-minute documentary about the trip will be offered through the Grateful Dead's direct mail operation shortly.







It's as far down-island as you can go and well worth the trip. Divers take it slow and easy at the nether tip of the Antilles where the world runs on....

## TOBAGO

## TIME

ost dive destinations have their star attractions, their box-office sea life: the giant clams of Australia's Great Barrier Reef; the

huge but placid schools of barracuda off Cuba's Isle of Pines; American Samoa's legions of grey

sharks; the docile, come-close-and-pet-them rays of Grand Cayman. I had been diving in Tobago, Trinidad's smaller sister island off the Venezuelan coast, for almost two weeks, but the closest I had come to experiencing its sig-

nature critter, the Atlantic manta ray (*Manta birostris*), had been a shoreside glimpse a few days before of an indeterminate fin flopping around on

the surface 30 yards out from the beach of a remote fishing village.

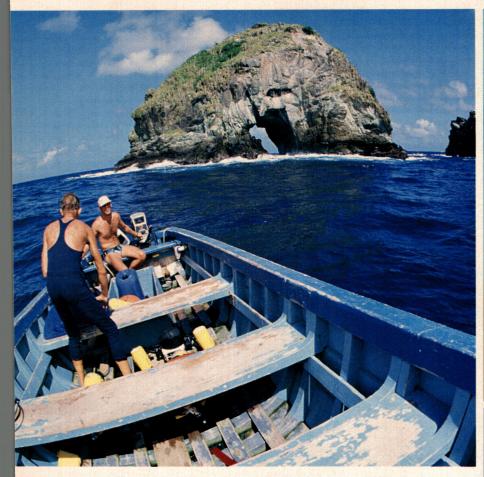
Now I was at a depth of 50 or 60 feet, about two-thirds of the way through a 45-minute drift dive called **Blackjack Hole**, a sloping, fissured wall off the seaward side of Little Tobago, an islet on the extreme northeastern end of the island. I

was also nearing the end of my stay in Tobago. The thought, admittedly defeatist, had just occurred that I was, once again, not going to see a manta—when suddenly a large shadow, an indistinct combination of



BY DAVID ABRAHAMSON PHOTOGRAPHY BY ALEX KIRKBRIDE

light and dark, appeared off to my right. I immediately swam toward it, and a moment later the form resolved itself into a sizeable Atlantic manta,





perhaps six feet from wingtip to wingtip, gracefully winging its way past me into the prevailing oceanic currents.

In truth, it was something of a glancing encounter. I was never closer than 20 feet, and it certainly took no notice of me as it swam by. But it was an encounter nonetheless, and like the other divers around me I found it hard not to be moved by the sight of the animal's extraordinary power and grace. Another moment and, with its huge wings tracing the most sensuous and fluid of arcs, the gentle creature's flight path had quickly taken it beyond my field of vision. But even if only for a few tantalizing instants, I had at last found "my" manta.

Like the manta in question, Tobago (toe-BAY-go) itself might prove difficult for some people to find. Almost 80 miles off the coast of South America, it lies 11 degrees north of the equator, midway between Grenada and Venezuela. Though geographically the southeastern anchor of the West Indies, in geological terms Tobago is in fact not part of the Antilles island chain at

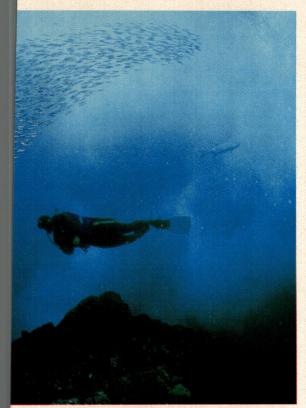
all. Rather, it is the last remnant of a sunken mountain chain arising from the South American continental shelf; in a figurative sense, the northeastern extremity of the Andes. The smaller portion of the twin-island nation of Trinidad and Tobago, it is the quiet country cousin to the more cosmopolitan island of Trinidad. Twenty-six miles long, 7.5 miles

wide, with a land area of only 116 square miles and a population of 40,000, Tobago is dwarfed by Trinidad (1,864 square miles and a population of more than a million) 21 miles to the southwest.

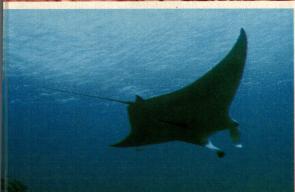
Indeed, Tobago was joined with Trinidad by its British colonial masters only a little more than a century ago, and for reasons of empire and economics its history has certainly been more colorful than that of its larger neighbor. According to some sources, Tobago may have served as the model for the fictional isle in Daniel DeFoe's *Robinson Crusoe*. True or not, its actual history was dramatic enough: From



its first sighting by Columbus in 1498 until the end of the 18th century, the island, in the words of one historian, "changed flags almost as regularly as it changed seasons." Before finally falling under permanent English control in 1803, Tobago was a prize shuttlecock in the Caribbean colonial ambitions of Holland, Latvia (Courland), France, Spain and England, changing hands 22 times. As a result, though part of an independent nation since 1962, the linguistic variety of Tobago's place names-Argyle, Les Coteaux, Auchenkeoch, La Guira-still reflects its polyglot colonial origins. And while almost all Tobagonians are of African







CLOCKWISE FROM TOP LEFT: THE ISLETS AND ROCKY **OUTCROPPINGS RINGING TOBAGO PROVIDE A VARIETY OF DIVE** VENUES: A POLARIZED SCHOOL OF HERRING FLOWS SINUOUSLY AROUND A PASSING DIVER; FOR DISGUISE, THE ATLANTIC THORNY-OYSTER LETS ITSELF BE OVERGROWN BY A VARIETY OF ORGANISMS; TOBAGO'S SIGNATURE CREATURE—MANTA BIROSTRIS—RIDES THE BLUE HIGHWAY; THE UNCOMMON COTTONWICK IS A SHY GRUNT, AND PATIENCE IS REQUIRED TO GET CLOSE.

#### Dive In

LOCATION: Tobago lies off the coast of Venezuela in the southern Caribbean, approximately 20 miles northeast of Trinidad.

TOPOGRAPHY: This verdant island cloaked in tropical forest is roughly 26 miles long and 7.5 miles wide. The mountainous midsection reaches heights of 2,100 feet and cascades down to wide, sandy beaches.

CURRENCY: The Trinidad and Tobago dollar (TT\$) is the standard currency, with an approximate exchange rate of US\$1 to TT\$5.8. Although U.S. and Canadian dollars are sometimes accepted, it's best to convert to local currency.

LANGUAGE: English is the official language of Tobago. French, Spanish, Hindi and Chinese are also spoken.

DOCUMENTS: U.S. and Canadian citizens need passports to enter Trinidad and Tobago. An ongoing or return ticket from the point of embarkation is also required.

ELECTRICITY: 110 or 220 volts AC, 60Hz. When making your hotel reservations, ask

if you'll need a transformer or adapter. CLIMATE: Tobago enjoys a tropical climate tempered by northeast trade winds. Year-round temperatures average 85F during the day and 74F at night. The rainy season runs from May to November; however, rains generally last no more than a few hours a day. Bring a good insect repellent when visiting during the rainy season.

WATER TEMPERATURES: The average year-round water temperature is 75F. VISIBILITY: Variable, averaging between 50 and 80 feet. Can be less following seasonal rains.

DIVING SKILLS: The unspoiled reefs off Tobago teem with colorful marine life. Aside from the shallow Buccoo Reef off the western end of the island, however, many of Tobago's dive sites are

GRENADA Giles Is Port of Spain TRINIDAD VENEZUELA TOBAGO Goat Is. igeon Point

suited for more experienced divers. Be prepared to brave sweeping currents and moderate to high seas at the more dramatic locations off the island's northern end—where giant Atlantic manta rays are a noted attraction. The small, offshore islands of Goat and Little Tobago provide protected sites offering some of the finest diving in the Caribbean.

GETTING THERE: BWIA (the national airline of Trinidad and Tobago) flies nonstop from Miami (\$374), New York (\$430) and Toronto (CAN\$643), to Trinidad, where you can connect with BWIA's service to Tobago (\$430). United (\$430) flies from New York to Trinidad with stop in Caracas. Expect a 10 percent increase in fares during an airline's high season.

GROUND TRANSPORTATION: Tobago is definitely worth exploring and the best way to see the island is by car. Sightseeing tours by taxi are quite common with rates negotiable. Car rental can be arranged through Tobago Travel, (809) 639-8778. Average cost begins at \$50 per day with unlimited mileage. Driving is on the left.

ACCOMMODATIONS: From quiet hideaways to full-service resorts. Some choices include: Blue Waters Inn (at the far northeast end of the island), popular with divers because of its proximity to the island's more spectacular reefs, (800) 888-3483; Crown Point Beach Hotel, located on the beach at Store Bay, (809) 639-8781; Grafton Beach Resort, one of the newest and more luxurious on the island, (809) 639-0191; Kariwak Village, comfortable and casual duplex cottages near the airport, (809) 639-8442; Mount Irvine Bay Hotel, an exclusive Tobago resort featuring an 18-hole golf course, (800) 44-UTELL; Richmond Great House, charming accommodations set on a cocoa and coconut estate, (809) 660-4467; Sandy Point Beach Club, a small beachside village, (809) 639-8533; Turtle Beach, two-story bungalows on a beachside coconut plantation, (809) 639-2851.

DIVE OPERATORS: Dive Tobago Ltd., based at Pigeon Point, is the island's oldest and most established dive operation, (809) 639-0202; Man Friday Diving, a somewhat more intimate operator located in Charlotteville, (809) 660-4676; Redman Diving, whose owner is generally credited with naming almost all the popular dive sites in the Speyside area, (809) 660-5464; Tobago Dive Experience (at Grafton Beach Resort and in Speyside) offers exciting drift dives for experienced divers, (809) 639-0191 (ext. 39); Tobago Dive Masters, a new venture in Speyside, (809) 639-9017; Tobago Marine Sports Ltd., with three locations at Blue Waters Inn, Store Bay and Crown Point Beach Hotel, (809) 639-0291; and Viking Dive, which serves an active European clientele, (809) 639-9209.

FOR FURTHER INFORMATION: Contact the Trinidad and Tobago Tourism Development Authority in New York at (800) 232-0082 or (212) 719-0540, or locally at (809) 623-1932; the Trinidad and Tobago Hotel and Tourism Association, (809) 625-1061; Embassy of the Republic of Trinidad and Tobago, (212) 682-7272.



descent, the polyracial makeup of neighboring Trinidad has seasoned the cuisine and customs of Tobago with a number of East Indian, Chinese and Latin American cultural influences.

For the modern traveler, Tobago as a diving destination remains as exotic as it is unspoiled. According to one estimate, fewer than 4,000 divers visit each year, and although tourism is its only industry, the entire island has only 750 hotel beds and a pace of life that varies between tranquil and somnolent. The average year-round high temperature is over 85F, but the tropical heat and humidity are moderated by the steady trade winds that sweep the entire length of the island from east to west. Most of the annual 70 inches of

rain falls during the rainy season between June and December, interrupted by a brief dry spell called *Petit Carême* in September and October and relieved by the January-to-May dry season.

The rhythms of the rainy seasons, along with the effects of both the strong Guyanese Current which swirls up the coast of nearby South America and the seasonal outflow of Venezuela's mighty Orinoco River, largely determine the nature of diving in Tobago. As an area of confluence for these oceanic and riverine currents, the seas around the island are unusually rich in nutrients; as a result, they are blessed with a large, long and complex food chain. Tobago's northeast wind-

ward end in particular, projecting like a ship's bow out into the incoming Atlantic swells, has surprisingly abundant wildlife: corals, gorgonians, sponges and reef fish, as well as the more theatrical dolphins, nurse sharks, tarpon and, yes, mantas. The trade-off, however, is that the visibility is rarely extraordinary, averaging between 50 and 80 feet and far less when seasonal rains swell the runoff from either local rivers or the Orinoco.

Local authorities generally agree that there (Continued on page 105)

### TOP OF TOBAGO

In addition to the quality of both its underwater offerings and the operators who can provide access, one other aspect may contribute to Tobago's uniqueness as a diving destination: It must be one of the very few islands in the Caribbean where tourists from the United States do not represent the majority of visitors. Indeed, in terms of numbers, Americans rank fourth, behind divers from Germany, Sweden and the United Kingdom. As a result, chancing across a fellow American tourist in Tobago is a rare occurrence.

No matter what one's country of origin, however, nor the single-mindedness of one's passion for the underwater world, Tobago is one of those diving destinations that can amply reward topside curiosity as well. To visit and not enjoy at least some of the island's cultural and biological distinctiveness is to have overlooked a unique set of experiences.

The twice-a-week farmer's market in Scarborough (population: 25,000) is a riot of sights, sounds and smells. Mangoes by the dozen, callaloo (a legume) by the bunch, nutmeg by the ounce, pigeon peas by the pound or land crabs by the claw are all readily available. Also in Scarborough, at the highest point overlooking the city, stands Fort King George, a lighthouse and former barracks complex which now houses the Museum of Tobago History. In addition, there is an idyllic beauty in the lovingly tended trees, flower beds and lawns of Scarborough's 17-acre Botanic Gardens.



AFTER FEASTING ON FRESH CRABS FROM SCARBOROUGH'S FAIR, TAKE A RIDE DOWN ONE OF TOBAGO'S MANY PICTURESOUE WATERFALLS.

Whatever one's preference in accommodation—and they range from four-star luxury hotel to modest guesthouse—some of the best and least expensive cuisine in Tobago can be found in local restaurants. Joy's Goal Post in Buccoo, Jemma's Sea-view Kitchen in Speyside and Sharon's in Charlotteville, for example, are all well worth a visit. A dinner that might cost US\$40 in a hotel dining room will cost less than \$9 on the local economy. And ordering is easy: Upon arrival at most local restaurants, all you have to do is respond to the inquiry, "Chicken or fish?"

Formerly the site of sugar plantations and still used for agriculture, the southwestern quarter of the island, called the Lowlands, is where most Tobagonians live. Just east of Scarborough, however, the land rises sharply to form a massive central ridge which constitutes the mountainous spine of the island. The highest summit is more than 2,100 feet, and deep valleys run down from either side of the main ridge. Countless streams and small rivers descend from the heights, often cascading down picturesque waterfalls to form dark bambooshrouded pools before continuing their rush to the sea. Some of the more accessible waterfalls, such as Argyle falls near Roxborough, are tended by personable young men happy to guide tourists to the best viewing points for a modest fee. Similar informal guide services can be arranged for those interested in ascending the main ridge itself

to explore the island's large forest reserve.

Like all heavily forested tropical habitats, Tobago is blessed with a generous variety of wildlife. Its worldwide reputation, however, is largely ornithological. Few islands anywhere in the world are blessed with the diversity and beauty of its bird life. Outside the larger towns, dawn is punctuated by the competing calls of wild parrots and the Tobagonian national bird, the Chachalaca (Ortalis ruficauda); a wild turkey-like crea-

Little Tobago, the 450-acre islet off Speyside, is also known as Bird of Paradise Island. Long a nature reserve, 47 birds of paradise were brought here in 1909, and for many years the island was their sole habitat outside of Papua New Guinea (unfortunately, all their progeny on Little Tobago perished in the 1963 hurricane Flora). Nevertheless, the island remains a nesting site for numerous native and migratory species, and local fishermen are happy to provide both transportation (a 15-minute ride) and a guided tour of the islet, snack included, for a reasonable fee. A delightful day can be fashioned to include a Little Tobago walking tour combined with a nearby dive.





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Nearly 25 years ago, Captain Jacques Yves-Cousteau and his research vessel, Calypso, motored through a shallow opening in the reef to discover a huge, perfectly circular lagoon—the collapsed ceiling of a gigantic underwater cave. A sense of awe gripped Cousteau and his crew as they explored this indigo abyss, which is more than 400 feet deep and 1,000 feet in diameter, and marveled at its king-size stalactites. Today, the mystique of this geological formation is just as compelling as it was in 1970—even after thousands of divers have journeyed here.

While the world's largest blue hole is the marquee attraction of this tiny



Central American nation, the marine wonders of Belize extend for hundreds of square miles across atolls and cayes. Belize, in fact, boasts one of the earth's longest barrier reefs, stretching for nearly 200 miles along the coastline.

Although atolls are usually found only in the South Pacific, Belize has three of the four found in the Caribbean—Turneffe Islands, Lighthouse Reef and Glover's Reef. Perhaps a thousand

islands of all shapes and sizes dot the topography, with the largest, Ambergris Caye, offering the lion's share of landbased diving resorts.

Immerse yourself in protected warm, waters and frolic among a multicolored forest of giant basket sponges, vivid vellow orange tube sponges and magnificent elkhorn coral. If you're a photographer, bring your macro gear. You'll burn film faster than air on an amazing variety of delicate crinoids, nudibranchs and brittle stars.

The spotted coney is just one of the many varieties of fish that can be seen in the clear Belizean waters.

More than 450 feet deep and 1000 feet across, Belize's famous Blue Hole is a must-dive.

Queen angelfish and princess parrotfish seem to be everywhere. And keep an eye out for manta rays, tarpon, barracuda, giant spider crabs, tiger groupers and several species of shark. In fact, there's often a resident hammerhead in the Blue Hole. For a different experience, try an early morning dive to a shallow, sandy site with rock piles or coral heads, and watch the March of the Conch as they emerge from their hideouts to scamper along the bottom.

In between dives, you can explore the surface of Half-Moon Caye, a small island that was once a retreat for buccaneers but is now inhabited by thousands of red-footed boobies, a type of sea bird that nests in the trees.

Belize is a laid-back, shorts-and-sandals kind of place. The lifestyle is slow, the weather uniformly warm, and the accommodations low-key. Thatched-roof lodges and elegant small inns are scattered across the islands and mainland. They are strategically situated to reach the best diving sites, usually after short runs in day boats. And if you want to cover as much water as possible, you can always book a luxurious live-aboard diving yacht.

It would take centuries to explore all the nooks and crannies that Belize has to offer. What is amazing is that so much adventure exists within a two-hour flight from the closest American airports.

Watch out. This place can grow on you.

#### BLACKLINE MARINE SERVICE AND DIVE SHOP

Blackline Marine Service and Dive Shop, a family-run business, is located on the riverfront just outside of Belize City and only a short distance from the airport, hotels and shopping. They offer spectacular diving including day trips or "Caribbean Castaway" packages to the barrier

reef, cayes and atolls. Blackline also specializes in fishing trips, river safaris where you can see howler monkeys and gentle manatees, and exciting inland tours.



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B · E · L · I · Z · E Sunny blue skies, tropical tradewinds, palm thatched cabanas, the second largest barrier reef in the world and a fully staffed and equipped dive center are all just part of what makes Ramon's Village one of the most unique vacation spots in the world.



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#### CAPTAIN MORGAN'S RETREAT

Enjoy the vivid colors of the Caribbean from one of 21 thatched-roof, beachfront casitas when you stay at Captain Morgan's Retreat on Ambergris Caye. Relax on the giant deck of the freshwater pool, sip a frosty margarita at the Jolly Roger Lounge and, at dinner, enjoy the finest native island cuisine. The adventurous vacationer will never run out of things to do at Captain Morgan's: diving, snorkeling, reef and deep-sea fishing, bird watching and excursions to ancient Mayan ruins.

#### CORAL BEACH HOTEL AND DIVE CLUB

Coral Beach Hotel & Dive Club, located on main street in the heart of San Pedro, is just a few steps from the sea. All of the 20 clean, comfortable rooms include

private baths and electric fans and/or air conditioning. The Coral Beach also includes a dining room known for its quality and variety. The Tackle Box bar, perched over the sea, is an island legend and a fully equipped dive shop offers rental equipment and certified guides.



Belize vacationers enjoy a day of snorkeling from a catamaran off San Pedro.

#### GAZ & DAVE'S BELIZE DIVE CENTER

Located on the crystalline waters of San Pedro, Gaz and Dave's Belize Dive Center is the only dive facility in San Pedro offering three-tank boat dives. In fact, they offer a wide variety of dive packages to suit your budget. Only two minutes from one of the world's longest barrier reefs, an abundance of superb dive sites are accessible from their custom dive boats. Trips to the world-famous Blue Hole and the fantastic walls of Lighthouse Reef and Turneffe are available as part of your package. They will pick you up and drop you off at your hotel dock and even rinse and store your equipment after each dive if you'd like. Their dive boats are fully equipped with oxygen, radio, first-aid and life vests.

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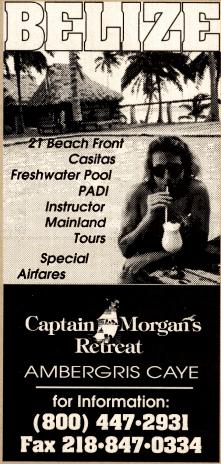
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Gaz and Dave have been diving Belize since 1987. Both have world-wide diving experience with numerous dive operations before establishing the Belize Dive Center. Gaz and Dave are PADI Master Scuba Diver Trainers and, along with professional PADI instruction, offer a variety of specialty courses ranging from Underwater Photography to Underwater Naturalist.



Green moray eels inhabit the coral crevices along the barrier reef.

#### LIGHTHOUSE REEF RESORT

Lighthouse Reef Resort is nestled on Northern Caye, a private island at the northern end of the Lighthouse Reef Atoll. The island's protected lagoon is ideal for nature lovers to observe wild birds and nature's many splendors while snorkelers can explore some of the most beautiful coral formations in Belize. If you're an experienced diver, the resort's custom-built cruiser will take you for a diving adventure to the untouched reefs and walls and the wrecks harbored below, plus the ultimate dive site, Belize's famous Blue Hole. After diving, you can head to the bar and restaurant overlooking the beach for refreshing margaritas, native dishes and spectacular sunsets. Luxury Victorian villa suites, villas and cabanas include over-sized beds, modern baths and spectacular views of the island's beachfront. Lighthouse Reef Resort requests only those vacationers who share their concern for the preservation of its unspoiled reefs and sea life.

#### MANTA RESORT

Twelve palm-studded acres at the southern tip of Glover's Reef, a federally pro-

tected atoll, make up the private paradise of the Manta Resort. Just a stone's throw from the resort, you'll enjoy unparalleled wall diving with visibility up to 200 feet and majestic marine life including manta rays, dolphins and sea turtles. The tropical mahogany cabanas of Manta Resort boast modern, private baths and private porches just a couple of steps away from the white-sand beach.

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Blue Bonnett Tours 800-334-8582

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A juvenile queen angelfish at the Hol Chan Marine Reserve.

#### MAYAN PRINCESS

The Mayan Princess is situated on a white-sand beach in the middle of San Pedro. Suites are complete with bedroom, bath, kitchen and living room. The Mayan Princess offers your favorite water sports including sailing, scuba diving, snorkeling and deep-water game fishing that can all be arranged by the front desk staff. The Mayan Princess prides itself on showing guests the "real meaning of an island vacation."

#### JOE MILLER PHOTOGRAPHY

Nothing beats the thrill of taking home beautiful pictures or videos of your Belize dive experience and Joe Miller Photography will help you do just that. Whether you want to rent an easy-to-use, point-and-shoot or you're a seasoned photo veteran who

wants a quick refresher, this is your onestop shop. From Nikonos camera and strobe rental to film sales and E-6 processing, everything you'd expect from a complete underwater photo facility is available here.

#### **OUT ISLAND DIVERS**

Out Island Divers is a San Pedro-based dive operator specializing in daily trips to Blue Hole, Lighthouse and Turneffe aboard its fast dive boats, Reef Roamers I & III, and safari-style overnight trips aboard the 50-foot Reef Roamer II. Out Island offers more departures each week

than any other dive operation and hotel packages to suit your budget. Day trips are fully catered and the price includes hotel pick-ups, professional divemasters, tanks and weights and hyperbaric chamber insurance.

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Ramon's Village on Ambergris Cave offers vacationers a relaxing getaway or an adventure-filled experience . . . it's your choice. Relax on the white-sand beaches or poolside. Go diving, snorkeling, fishing, sailing, windsurfing or canoeing . . . all available on-site. Explore the island at your leisure by golf cart, motor scooter or bicycle. Sixty palm-thatched cabanas include full baths and private verandas. Ramon's amenities include a restaurant and veranda for snacking or formal, sit-down dining in casual elegance, the worldfamous Purple Parrot open-air bar and a full-service dive facility offering tank fills, equipment rentals, local and charter dive trips and certifications.

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#### SPECIAL ADVERTISING SECTION

REEF DIVERS, LTD.

Reef Divers on Ambergris Caye will take you on exciting dives to spur and groove corals, canyons, swim-through caverns and a marine reserve, or you can book a day trip to the famous Blue Hole. Snorkelers will enjoy the Hol Chan Marine Reserve and Mexico Rocks. When you want a break from diving, Reef Divers will guide you to Belize's best fishing spots for bone or reef fishing. Reef Divers also offers all levels of private diving instruction from both locations at Journey's End Caribbean Club and Royal Palm Inn.

#### TURNEFFE ISLAND LODGE

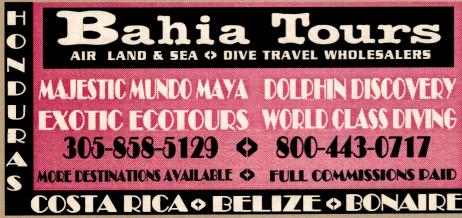
Turneffe Island Lodge is located on Caye Bokel, a privately owned island 30 miles from Belize City. The island is 12 acres of white sand beaches and coconut palms surrounded by the western Caribbean's crystal flats and sheer drop-

off walls. The lodge accommodates 24 guests in waterfront cottages with screened porches. Other lodge amenities include a lounge, a spacious dining room and four dive boats.



The keel-billed toucan is the national bird of Belize.





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Nondivers deduct \$100.00 7 NIGHT PACKAGE

Package includes: Round-trip airfare from Miami, Houston or New Orleans (from New York, San Francisco and Los Angeles add \$250.00) Round-trip air transfers from Belize City to Ambergris Caye, 7 night hotel accommodations at Sun Breeze Beach Hotel, welcome cocktail, free T-shirt, daily continental breakfast, free poster, 5 full days of diving with Bottom Time Dive (2 tanks boat dive per day), tanks, weights and belts.

## DIVE

San Pedro • Ambergris Caye • Belize

Call Now For Information



#### 800-327-2254





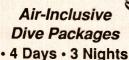
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#### SPECIAL ADVERTISING SECTION

#### BELIZE AGGRESSOR II

The Belize Aggressor II ensures a week of unlimited diving filled with Belize's extraordinary walls, atolls and virgin dive sites, highlighted by the famous Blue Hole. They will whisk you to Lighthouse Reef in only a few hours. This atoll is one

of the greatest living reef formations of the entire Caribbean, where vertical drop-offs plunge into the abyss. Since these reef formations are located 60 miles offshore, they are not readily accessible to fishermen, thus resulting in an abundant population of groupers, large crabs, turtles, rays and schools of horse-eye jacks as well as a profusion of gaily colored reef life in beautiful coral gardens.

Your Aggressor itinerary includes a luncheon barbecue on Half Moon Cay. There you can explore the bird sanctuary, photograph the pink-footed boobie birds and large iguanas, and enjoy the breath-taking view from the top of the lighthouse.

The live-aboard amenities of the Belize Aggressor II include an underwater camera rental department with an E-6 processing lab, dive gear storage and a crew with the expertise both in live-aboard diving and underwater photography. Guests will also enjoy the luxuriously fitted air-conditioned staterooms, the sundeck for relaxing, the well-equipped lounge area with television, VCR and tape library, and the dining room featuring the finest of Caribbean cuisine.

#### PETER HUGHES DIVING - WAVE DANCER

On Peter Hughes' live-aboard, Wave Dancer, you'll enjoy unlimited diving in the beautiful waters of Belize with bottom time limited only by your computer. Wave Dancer specializes in diving off the atolls, especially the spectacular wall diving of Lighthouse Reef. The Wave Dancer is 120 feet long and holds a maximum of 20 divers, which means larger cabins with private baths, plenty of equipment storage and two outside lounging areas. Other amenities include sumptuous American and Island cuisine, large dive platform and state-of-the-art photo and video lab, just to name a few.

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CIRCLE NO. 119 ON READER SERVICE CARD

n its ten-year history,



International Airlines flies directly to Belize from Miami, New Orleans and Houston, with immediate connections from the West Coast.

LOCATION - Belize is located south of Mexico and east of Guatemala. It was formerly called British Honduras.

CUSTOMS - Bring a passport, along with a return air ticket. No visas are required for American citizens. When returning to the U.S., you are allowed up to \$400 in duty-free purchases. However, certain pre-Columbian artifacts, and fish, coral or shells may be confiscated.

LANGUAGE - English is the official language and is spoken nearly everywhere in Belize, an independent country though still a member of the British Commonwealth.

CURRENCY - \$1 U.S. equals \$2 Belize, but you can use U.S. currency everywhere and most hotels, resorts and restaurants accept traveler's checks and credit cards.

GETTING AROUND - Most resorts and live-aboards can arrange to pick you up at the airport in Belize City, and take you by boat or small, fixed-wing aircraft to your lodge. For example, it takes just a few minutes by air to reach Ambergris Cave, or an hour and 15 minutes by boat. If you want to explore the interior of Belize, rental cars are available in Belize City.

ATTRACTIONS - Apart from the diving, Belize offers a wealth of historic and natural attractions on its mainland. Points of interest include the Baboon Sanctuary at Bermudian Landing, the world's first and only jaguar preserve, bird sanctuaries (there are 500 varieties of birds in Belize), caverns with guided tours, Mayan ruins, nature trails through rain forest and magnificent waterfalls such as Hidden Valley Falls.

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Aggressor Fleet has set the standards in worldwide live-aboard excellence, and the tradition continues with the all new BELIZE AGGRESSOR III. Our 120foot vacht offers an outstanding vessel design that far surpasses any other dive boat on the water today. We've given you ample room to unwind and enjoy your surface intervals in style, with 3 spacious decks, a luxurious salon with entertainment area and private staterooms, each with individual climate control and private head.

Thirty feet below the yacht, adventure begins on the world's second largest barrier reef and 3 rare Caribbean atolls. Exquisite coral formations, huge schools of exotic reef fish and large pelagics await you. With a decade of service performance and customer satisfaction, Aggressor Fleet brings you real diving excellence!





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# Belize







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83 North Front Street

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Tel: 011-501-2-77213/73255

Fax: 011-501-2-77490

In the U.S. - 1-800-4-BELISE

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JOE MILLER

HOTOS BY

# Dive the Keys

thin, white-hot ribbon of concrete snaking across pool table-green eel grass flats ... day after relentless day of bell-clear sapphire skies ... dive shops thicker than yellowtails at a fish feed ... a dive boat fleet bigger than the Bolivian navy ... the Triple Crown of marine sanctuaries ... and, at the end of the road, Margaritaville-a place connected to mainstream America by cultural threads so thin that it threatens at any moment to detach itself and float off into a pan-Caribbean nirvana. Welcome to the Florida Keys, America's only drive-to tropical islands and the most popular dive destination on the planet.

Like the guard on a cup-hilt rapier, the islands curve down and away from the mainland, lining the Straits of Florida to the south and buffering that northbound express train called the Gulf Stream screaming up the east coast of the continent. The natural consequence of such an auspicious location is a solid 220-mile long chain of patch reefs and coral islets thronged by more than 400 species of tropical fish in sizes and numbers undreamt of in some popular Caribbean locales.

Zane Gray fished and dodged his editors here; Ernest Hemingway drank his way through two wives and six novels in Key West. Authors, adventurers and pirates have always felt at home here. And divers—looking to capture a few moments of subsea excitement—do too. The Spanish left two whole treasure fleets and a host of lesser vessels here. English, Dutch and American ships have added to the bounty over the years so that there's scarcely a place where such a great variety of wrecks can be seen in such clear water.

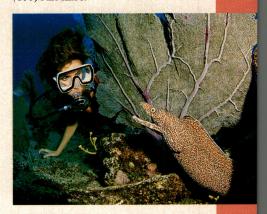
The place is so obviously magical that Florida's first marine reserve—John Pennekamp Coral Reef State Park—was established in Key Largo 34 years ago. Later, Looe Key and Key Largo national marine sanctuaries were added; the Florida Keys National Marine Sanctuary has since been authorized to surround and protect the whole chain of reefs.

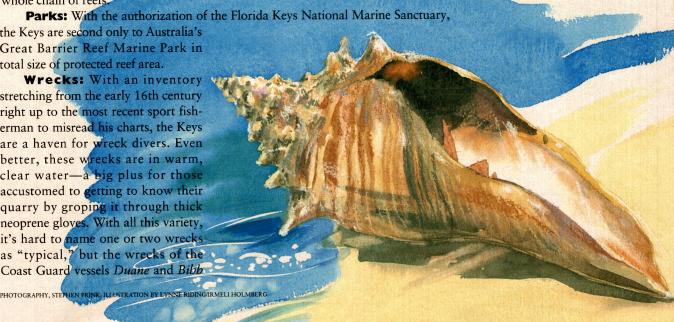
Parks: With the authorization of the Florida Keys National Marine Sanctuary,

the Keys are second only to Australia's Great Barrier Reef Marine Park in total size of protected reef area.

Wrecks: With an inventory stretching from the early 16th century right up to the most recent sport fisherman to misread his charts, the Keys are a haven for wreck divers. Even better, these wrecks are in warm, clear water—a big plus for those accustomed to getting to know their quarry by groping it through thick neoprene gloves. With all this variety, it's hard to name one or two wrecks as "typical," but the wreeks of the Coast Guard vessels Duane and Bibb

An embroidered seam off Florida's southeastern coast, this chain of chunky limestone keys has achieved legendary status. For more information, call the Florida Keys Visitors Bureau, (800) FLA-KEYS.









## 27 Sensational Dives in the Keys

#### UPPER KEYS

DEPTH:
Up to 100
feet

SKILL LEVEL:
Novice to
Advanced

ACCESS: Boat

#### FRENCH REEF

French Reef is pockmarked with caves, ledges and swim-throughs stuffed with stingrays, blackbar soldierfish, grunts, yellowtails and morays. Bring a flashlight to explore crevices and grottoes.

DEPTH: 10-35 feet SKILL LEVEL: Novice ACCESS:

#### THE ELBOW

The Elbow, or Wreck Reef, has been a filter for foundering ships for centuries. The Towanda, City of Washington, Civil War Wreck and Mike's Wreck, as well as dam-

selfish, angelfish, grunts, snappers and green morays call this sandy floor home.

DEPTH: 35-70 feet SKILL LEVEL: Intermediate ACCESS:

#### CARYSFORT REEF

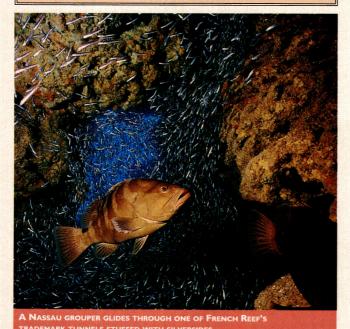
One of the most northerly sites in the Keys, a trip to this reef rewards you with elkhorn, staghorn, fire and lettuce coral that give way to a wall plastered with brain and sheet coral.

#### How Skilled Are You?

Novice: Someone in reasonable physical condition who has recently completed a basic certification course, or a certified diver who hasn't dived recently or who has no experience in similar waters.

**Intermediate:** A certified diver in excellent physical condition who has been diving actively for at least a year following a basic certification course or who is experienced diving in similar waters.

Advanced: Someone who has completed an advanced certification course, is in excellent physical condition and has been diving recently in similar waters.



Queen angels brighten the scene, but kicking up the finesand bottom can cloud the scenery.



#### Molasses Reef

If Key Largo National Marine Sanctuary was a town, this reef would be its main strip. The locals in this melting pot are grouper, snapper, blue tang, angelfish, sergeants major and barracuda galore. The coral life is profuse and the vis crystalline.



#### DUANE

After the 327-foot Coast Guard cutter's keel was laid in 1935, she sank a German sub, *U*-175, served as a flagship in the Allied invasion of southern France in 1944 and escorted Cuban refugee boats in the '80s before being

scuttled as an artificial reef. Awash in the Gulf Stream's strong current, 200-foot vis is common, as are huge fish, including amberjack and cobia.



#### BIBB

Resting on her side in deeper water, the *Bibb*—a half-mile from the *Duane* and also a 327-foot Coast Guard cutter—is a slightly different dive. Amberjacks, turtles and large

sharks make up her new crew, and the *Bibb* equals the *Duane* with excellent vis.



#### EAGLE

One of the first intentionally sunk ships in the Keys, the 287-foot freighter reached her watery grave in 1985, greeted by amberjack, grouper, cobia and silversides. Expect 50- to

100-foot visibility.



#### ALLIGATOR REEF AND WRECK

The pirate-hunter *USS Alligator* ran aground in 1822 on the reef which now bears its name. Watch out for scorpionfish that lie motionless among her debris field of ballast stone. The

reef is one of the Key's largest, and divers will enjoy a hard and soft coral garden abuzz with tropicals.



#### CANNABIS CRUISER

Enroute to America during a drug-smuggling mission, a jittery crew fearing heavy surveillance sank this 75-foot trawler. It was discovered five years later, and her cargo is now mostly legal—sharks.

grouper and angelfish. If you find some ganja, play it safe and just say no.



#### HEN AND CHICKENS

Its clusters of coral heads have been likened to a hen surrounded by chicks—a tame image for such a wild site. Grouper, sheepshead, queen angels and porkfish abound at this site over-

grown with sea fans and gorgonians.

#### MIDDLE KEYS



#### DELTA SHOALS

Delta Shoals' long fingers of brain and star coral reach out across a sandy plain, where multihued tropicals, spiny lobster and morays fit like a glove. The Ivory Wreck was unable to

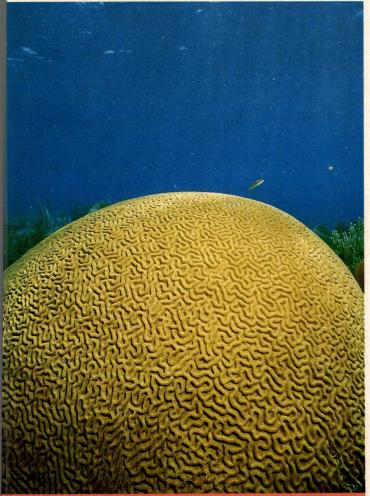
escape the Shoals' eternal grasp. It might claim you, too.



#### SOMBRERO REEF

Sombrero Reef is a fiesta of color—screaming-yellow sponges, deep-purple sea fans, rainbowed angels and neon gobies. The reef's floorscape is dynamic—a bridge of coral called The Arch, and

a myriad of crevices, ledges and overhangs. Don't forget to bring a light to look for lobster in the shadows.



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Admiral Dive, (800) 346-DIVE, (305) 451-1114	0		0	0	0
American Diving Headquarters,					
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(305) 451-0037	0	0	0	0	0
Amy Slate's Amoray Dive Resort,					
(800) 4-A-MORAY, (305) 451-3595	0	0	0	0	0
Aqua-Nuts, (800) 226-0415, (305) 451-0414 Bud N' Mary's Dive Center, (800) 344-7352,	ŭ		ŭ	٠	٠
(305) 664-2211	0		0	0	0
Capt. Chambers Charters, (305) 451-1805	0	0	0		0
Capt. Corky's Divers World, (800) 445-8231,					
(305) 451-3200	0		0	0	0
Captain Slate's Atlantis Dive Center, (800) 331-DIVE,					
(305) 451-3020	0	0	0	0	0
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(305) 852-4599	0		0	0	0
Floridaze Dive Center, (800) 437-3483, (305) 852-1432	0	0	0	0	0
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Island Ventures, (305) 451-4957 It's A Dive Watersports, (800) 809-9881,	٥				•
(305) 453-9881	0	0	0	0	0
Lady Cyana Divers, (800) 221-8717, (305) 664-8717	0		0	0	0
Ocean Divers, (800) 451-1113, (305) 451-1113	0		0	0	0
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(305) 852-8770	0		0	0	0
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(305) 451-3640	0	0	0	0	0
Silent World Dive Center, (800) 966-DIVE,					
(305) 451-3252	0	0	0	0	0
Stephen Frink Photographic, (305) 451-3737			0	0	0
Tavernier Dive Center, (800) 537-3253, (305) 852-4007	0		0	0	0
The Reef Shop, (800) 741-4385, (305) 664-4385	0	0	0	0	0
World Down Under, (800) 245-DIVE, (305) 664-9312			0	0	

DEPTH:
10-20 feet
SKILL LEVEL:
Novice
ACCESS:
Boat

#### COFFINS PATCH

The only morbid thing about this dive is its name. This metropolis of brain, pillar, fire and staghorn coral attracts French angels, snapper, lobster and grunts. Remember the

camera—this is macro territory.



#### R/V THUNDERBOLT

This 200-foot research vessel remains almost entirely intact, except its doors and hatches have been removed for safe diving. Swim with barracudas throughout her easily accessible

compartments and passageways to her massive bronze props. Watch out for stinging hydroids.

FLORIDA KEYS DIVE OPERATORS	oat	rs boats thers	ıntal	iles	instructional
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Underseas Inc., (800) 446-5663, (305) 872-2700 Viewfinder Dive Center, (800) 860-DIVE, (305) 292-5000	0		0	0	0

DEPTH: 20 feet SKILL LEVEL: Novice

#### IVORY WRECK

This slave schooner was imprisoned by Delta Shoals in the 1850s and was named for ivory tusks found among her debris. There are slim pickings now, but the tropicals that swarm here are far from scarce.

#### LOWER KEYS

DEPTH: 0-100 feet SKILL LEVEL: Novice to Advanced ACCESS:

#### LOOE KEY/HMS LOOE

The RSD Reader's Choice for favorite U.S. reef and night dives, Looe Key is a land of superlatives, a planet-full of marine life dense-

ly packed into five-and-a-half square miles. Prolific corals, a hyperabundance of colorful fish, rays and macro-critters and vis sometimes in the triple digits. Need we say more?

DEPTH: 10-60 feet SKILL LEVEL: Novice to Intermediate

Access:

#### THE SAMBOS

The Sambos is a coralline triple-play—Western, Eastern and Middle Reefs—interrupted by a sandy floor. The bottomography is a bumpy fabric of coral heads woven with rich marine life. This is a lobster season hot spot so don't

forget to fly your dive flag.

DEPTH: 5-120 feet SKILL LEVEL:

Access:

#### DRY ROCKS

Eastern Dry Rocks is shallow coral gardens tended by conch and lobster. Treasure hunt for spikes, rigging, ballast stones and cannonballs along the reefy bottom. Western Dry Rocks is

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	Keys Hotels/Resorts		,	OFPE	Stris /	/	/	5	/	Shing	/	1	and /	/	ANCO	S Sitt	netriti	STATE OF	Sindle di	O Double	Triple	Sindle	Double
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	Amy Slate's Amoray Dive Resort 104250 Oversea: Hwy, Key Largo, Fl. 33037 (800) 4-4-HOULY, (303) 451-3595; Faz: (305) 453-9516	1		1	1		1							1	1	1		\$75	\$90	\$95	\$60	\$70	\$75
	(800) 4-A-HORAY, (305) 451-3595; Fax: (305) 453-9516  BAY HARBOR LODGE • 97702 Overseas Hwy., Key Largo, FL 33037, (305) 852-5695		7550			1	575	an in						18013	- 1878	/		\$48-\$75	\$48-\$75	\$70-\$95	\$42-\$62	\$42-\$62	\$60-\$8
	BEST WESTERN SUITES AT KEY LARGO 201 Ocean Dr., Key Largo, FL 33037, (800) 462-6079, (305) 451-5081; Fax: (305) 451-4173		1	1	1			1					1	1		1	CANC.	\$160	\$170	\$180	\$95	\$105	\$105
	BREEZY PALMS RESORT - 80015 Overseas Hwy., Islamorada, FL 33036 (800) FUR-KETS, (305) 664-2361; Fax: (305) 664-2572				1	1							7	1		1		\$75-\$180	\$75-\$180	\$85-\$180	\$45-\$120	\$45-\$120	\$50-\$
	CHEECA LODGE MM 82, Islamorada, FL 33036, (800) 327-2888; Fax: (305) 664-2893	1		1		1	1	1	1	1			1	1	1	1	1		\$225-\$475	\$300-\$800		\$150-\$375	\$250-
	THE CHESAPEAKE RESORT - 83409 Overseas Hwy., Islamorada, FL 33036 (800) 338-3395, (305) 664-4662; Fax: (305) 664-8595		1	1	1	1	1	1	1	1	1		1	1		1		\$140	\$140	\$155	\$96	\$96	\$111
	FRANK'S KEYHAVEN - 198 Harborview Dr., Tavernier, FL 33070 (800) 765-5397, (305) 852-3017; Fax: (305) 852-3880			1	1	1	1	1					1	1		1		\$79	\$82-\$112	\$85-\$128	\$69	\$75-\$112	\$79-\$
	GILBERT'S HOLIDAY ISLAND OF KEY LARGO 107900 Overseas Hwy., Key Largo, FL 33037, (305) 451-1133; Fax: (305) 451-2955	1		1	1	1	1	1		1		1				1		\$55	\$65	\$75	\$35	\$45	\$55
	HOLIDAY ISLE BEACH RESORTS & MARINA 84001 Overseas Hwy., Islamorada, FL 33036	1	1	1	1	1	1	1			1	1	1					\$95-395	\$95-395	\$95-395	\$65-320	\$65-320	\$65-3
	(800) 327-7070, (305) 664-2321; Fax: (305) 664-2703																	\$110-\$230	\$110-\$230	\$125-245	\$75-\$160	\$75-\$160	\$75-5
	HARBOR LIGHTS HOWARD JOHNSON			diam								atores							\$80-\$135 \$125-\$145	\$95-\$150 \$140-\$160	\$50-\$90 \$75-\$95	\$50-\$90 \$75-\$95	\$60-5
	HOWARD JOHNSON RESORT HI 102, Key Largo, FL 33037, (800) 947-7320, (305) 451-1400; Fax: (305) 451-1400 ext. 502				1	1	1					1	•	¥		1			\$125-\$225	\$125-\$225	\$69-\$109	\$69-\$109	\$69-\$
	SELAND BAY RESORTS - MM 92.5, Overseas Hwy., Tavernier, FL 33070 (800) 654-RETS, (305) 852-4087; Fax: (305) 852-2976	1	/		1	1	1	1		Terrese.						1		\$65	\$65	\$85	\$45	\$55	\$65
	LOOKOUT LODGE 87770 Overseas Hwy., Islamorada, FL 33036, (305) 852-9915		1	1	1	1	1	1					1	1	1	1		\$79-\$129	\$79-\$129	\$89-\$139	\$69-\$109	\$69-\$109	\$79-5
	KELLY'S MOTEL • 104220 Overseas Hwy., Key Largo, FL 33037 (800) 226-0415, (305) 451-1622; Fax: (305) 451-4623	1	/	/	1	1	1			1		1		1		1		\$79	\$89	\$99	\$55	\$65	\$75
	MARINA DEL MAR RESORT AND MARINA 527 (arribbean Dr., Key Largo, Fl. 33037, (800) 451-3483, (305) 451-4107; Fax: (305) 451-1891		1	1	1		1	1	1	1	1	1				1		\$110	\$120	\$120	\$70	\$79	\$79
	MARRIOTT KEY LARGO BAY BEACH RESORT 103800 Overseas Hwy Key Largo, FL 33037 (800) 932-9332, (305) 453-0000; Fax: (305) 453-0093	1		1	/	/		1				1	1	1			1	\$149	\$189	\$235	\$129	\$165	\$195
	OCEAN POINTE 500 Burton Dr., Tavernier, FL 33070, (305) 853-3000; Fax: (305) 853-3007				1	1			1	1		1	1						\$200		<b>医眼神经</b>	\$160	
ä	PELICAN COVE RESORT - 84457 Old Overseas Hwy., Islamorada, FL 33036				1	1	1	1	1	1		1	1			1		\$165-\$285	\$165-\$285	\$180-\$285	\$115-\$245	\$115-\$245	\$130
	(800) 445-4690, (305) 664-4435; Fax: (305) 664-5134  PLANTATION YACHT HARBOR RESORT	1	1	1	1	1	1	1	1	i de la constant		1				1		\$95	\$135	\$145	\$55	\$65	\$75
	87000 Overseas Hwy., Islamorada, FL 33036, (305) 852-2381; Fax: (305) 852-2381  ROCK REEF RESORT - MM 98, Bayside, Key Largo, FL 33037			2350		1				1				1	KC 4/G	1	hors.	\$64-\$119	\$64-\$119	\$64-\$119	\$54-\$109	\$54-\$109	\$54-
	(800) 477-2343, (305) 852-2401; Fax: (305) 852-5355				1	1	1	1	1	1	1	1		1	1	1	1	\$180	\$180	\$195	\$145	\$145	\$160
	97000 S. Overseas Hwy., Key Largo, FL 33037 (800) 826-1006, (305) 852-5553; Fax: (305) 852-5198																	***	-15	-70			***
	SMUGGLERS COVE MARINA & RESORT 85500 Overseas Hwy., Islamorada, FL 33036, (305) 664-5564; Fax: (305) 664-2953	,		,	1	•	1	1	and the same			,	•	See 1		1		\$60	\$65	\$70	\$45	\$50	\$55
	TROPIC VISTA MOTEL - 90701 Old Highway, Tavernier, FL 33070 (800) 537-3253, (305) 852-8799; Fax: (305) 852-4605	,		1	,		1	,		1		,	,			1		\$63	\$63	\$69	\$38-\$53	\$38-\$53	\$44-
	BANANA BAY RESORT & MARINA 4590 Overseas Hwy., Marathon, Fl. 33050 (800) BANNA-1, (305) 743-3500; Fax: (305) 743-2670	•			/	′	1	•	1	/		•	•					\$125	\$125	\$135	\$75	\$75	\$85
	BUCCANEER RESORT HOTEL 2600 Overseas Hwy., Marathon, Fl. 33050, (305) 743-9071; Fax: (305) 743-5400	1	1	1	1	1	1	1	1	1		1	1	1	1	1		\$59-\$99	\$59\$99	\$69-\$109	\$49-\$89	\$49-\$89	\$59-
	CORAL LAGOON RESORT 12399 Overseas Hwy., Marathon, FL 33050, (305) 289-0121	1		1	1	1	1	1	1	1000						1		\$115	\$115	\$125	\$65	\$65	\$75
23	FARO BLANCO MARINE RESORT - 1996 Overseas Hwy., Marathon, FL 33050 8000, 759-3276, (305) 743-9018; Fax: (305) 743-2918	1			1		1	1	1			1	1			1		\$65-\$225	\$65-\$225	\$75-\$235	\$55-\$198	\$55-\$198	\$65-
	HAWK'S CAY RESORT & MARINA MM 61, Duck Key, FL 33050, (800) 432-2242, (305) 743-7000; Fax: (305) 743-5215	1			1	1	1	1	1	1	1	1	1	1	1	1	1	\$205	\$205	\$235	\$130	\$130	\$160
ě	HOLIDAY INN MARATHON & MARINA	1		1	1	1	1	1				1	1	1		1	1	\$119	\$129	\$139	\$99	\$109	\$119
	13201 Overseas Hwy., NM 54, Marathon, FL 33050 (800) 224-5053, (305) 289-0222; Fax: (305) 743-5460 ROYAL HAWAIIAN MOTEL			,	,		,	1								/		\$55	\$60	\$70	\$45	\$50	\$60
	12020 Overseas Hwy., Marathon, FL 33050, (305) 743-7500	Tana		5000	,	1	,	,	DOM: 1	,		1	1	5000	300	,	restan	\$165	\$175	\$185	\$145	\$155	\$165
	SOMBRERO RESORT - 19 Sombrero Blvd., Marathon, FL 33050 (800) 433-8660, (305) 743-2250; Fax: (305) 743-2998			0.70		ľ	1	1		1		,	•			,		\$185	\$220	\$265	\$115	\$130	\$165
	BANYAN TREE OF KEY WEST - 323 Whitehead St., Key West, FL 33040 (800) 225-0639, (305) 296-7786; Fax: (305) 294-1107		,	G 7.6			١,	,	10000	,		,	,	,	a resi	′	1	\$75-\$275	\$75-\$275	\$75-\$275	\$55-\$165	\$55-\$165	\$55-
	EDEN HOUSE - 1015 Fleming St., Key West, FL 33040 (800) 533-RETS, (305) 296-6868, Fax: (305) 294-1221		1				1			•	1	•	,	•			•	\$139	\$139	\$13-\$273	\$99	\$99	\$109
	FAIRFIELD INN BY MARRIOTT - 2400 M. Roosevelt Blvd., Key West, FL 33040 (800) 843-5888 (Fla. only), (305) 296-5700; Fax: (305) 292-9840		Bergan	100000	Total Care			Direct.		,		Sec.	,				notice:			\$150-\$170	\$90-\$125	\$90-\$125	\$90-
	HAMPTON INN KEY WEST - 2801 N. Roosevelt Blvd., Key West, FL 33040 (800) 395-1634, (305) 294-2917; Fax: (305) 296-0221					1				,			,	1		1		eneri	\$150-\$170		\$85-\$150	\$85-\$150	\$95-
	HOLIDAY INN BEACHSIDE - 3841 N. Roosevelt Blvd., Key West, FL 33040 (305) 294-2571; Fax: (305) 296-5659	1	2000	1	1	ľ	,	1	1	1		1	,	,			1		\$105-\$225	\$115-\$235	\$180-\$255	\$180-\$255	
Ž,	HYATT KEY WEST - 601 Front St., Key West, FL 33040 (800) 233-1234, (305) 296-9900; Fax: (305) 292-1038					1	1	,		1	•	1	•	•		1	1		\$265-\$370	\$305-\$410			\$220
	LOGE KEY REEF RESORT - MM 27.5, Ramrod Key, FL 33042 (800) 942-5397, (305) 872-2215; Fax: (305) 872-3786	1		1	/			,				1		-		1		\$137.35	\$174.80	\$220.02	\$104.05	\$141.50	\$186
	OLD CUSTOMS HOUSE INN 124 Duval St., Key West, FL 33040, (305) 294-8507					1	/	,				1				1		\$125	\$125	\$150	\$75	\$75	\$100
	PARMER'S PLACE - Barry Ave., Gulfside, Little Torch Key, FL 33043 (305) 872-2157; Fax: (305) 872-2014				1		/	1	/				,			1		\$66-135	\$66-135	\$66-135	\$55-100	\$55-100	\$55-
	QUALITY INN KEY WEST 3850 M. Roosevelt Blvd., Key West, FL 33040, (305) 294-5618	1	1	/		1	1	/	SHOK SHOW			/	1					\$64-\$276	\$64-\$276	\$64-\$276	\$64-\$276	\$64-\$276	\$64-9
	SHERATON SUITES RESORT - 2001 5. Roosevelt Blvd., Key West, FL 33040 (800) 452-3224, (305) 292-9800; Fax: (305) 294-6009					1	1	/		1	1	1	-	1		1	-	\$235	\$235	\$260	\$165	\$165	\$190
Ä	SIMONTON COURT HISTORIC INN - 320 Simonton St., Key West, FL 33040, 800) 944-2687, (305) 294-6386, Fax: (305) 293-8446									1									\$130-\$275	\$260-\$320	\$110-\$195	\$110-\$195	\$180
	SOUTH BEACH MOTEL - 508 South St., Key West, FL 33040, (800) 354-4455, (305) 294-5539; fax: (305) 294-8272	1		1	1	1		1								1		\$99-\$210	\$158-\$210	\$168-\$220	\$67-\$130	\$77-\$130	\$102
	SOUTHERN MOST MOTEL - 1319 Duval St., Key West, FL 33040, (800) 354-4455, (305) 294-5539; Fax: (305) 294-8272	1		1	1	1	1	1		1			1	1		1		\$99	\$118	\$128	\$65	\$77	



One of Key West's most popular shallow sites, Sand Key is a grouper-filled grotto of elkhorn and staghorn for divers and snorkelers.

deeper and more remote, but pays off with caves and crevices filled with angels and butterflyfish. Fine-tune your peripheral vision—this place is a shark magnet.

SKILL LEVEL: Access:

#### TEN FATHOM BAR

Sponges, corals and colorful tropicals splash across this wall like urban graffiti. Panhandling snapper and grouper aren't shy, and be careful in the strong current—it's a jungle down here.



#### SAND KEY

Called Cayos Arena by Spanish explorers, Sand Key continues to thrill underworld adventurers-divers and snorkelers alike. Expect to find grouper along the ledges, and forests of staghorn and elkhorn coral, but

watch out for thickets of fire coral. Summer's the best visiting period when vis can reach 100 feet.



#### CAYMAN SALVOR

Intended to become an artificial reef at 300 feet, this 200-foot buoy tender was being towed farther out to sea when her towline snapped. The current's strong, fish here are hefty and the wreck is easily penetrable.



#### USS WILKES BARRE

This 610-foot cruiser is a decorated veteran—it softened up pillboxes on Iwo Jima and escorted the amphibious invasion of Okinawa during World War II. Now it's adorned with big fish and artifacts galore. The mammoth wreck was

split in two when explosives were detonated to sink her.

#### OFF THE BEATEN TRACK...

Where do Keys operators go to get away from it all? Here are some of their favorite dive sites:

#### DRY TORTUGAS

DEPTH: 0-80 feet **SKILL LEVEL: Novice to** Advanced **ACCESS: Boat** 

A long run 65 miles west of Key West, the Dry Tortugas boast 100 square miles of reef, 16 wrecks and frequent visibility of 100 feet. And you're not likely to bump into other divers this far from civilization. Nondivers will enjoy Fort Jefferson, built in 1846, and the Bush Key bird sanctuary. At least two dive boats serve the Tortugasthe M/V Spree (305-451-3020) and the Yankee Freedom (305-294-7009).

#### **MARQUESAS KEYS**

DEPTH: 0-30 feet SKILL LEVEL: Novice to Advanced **ACCESS: Boat** 

The only known atoll in the Atlantic Ocean, this ring of islands is believed to have been ground zero of an earthbound meteor. And the diving is out of this world, too-coral shallows

brimming with cobia, grouper, jewfish and lobster. It's a bumpy one-hour ride from Key West but well worth the trip.

#### **JULES' UNDERSEA** LODGE

DEPTH: 30-35 feet SKILL LEVEL: Novice to Advanced **ACCESS: Beach** 

One of the few places in the world you can record 24 hours of bottom time, Jules' Undersea Lodge (305-451-2353) is an upscale hotel 30 feet below the surface just north of John Pennekamp State Park. A resort course and a good credit limit will get you into the hotel, and angelfish outside your window provide the wake-up call.

#### LONG KEY STATE PARK

DEPTH: 2-20 feet SKILL LEVEL: Novice **ACCESS: Beach** 

Renowned for excellent oceanfront camping, Long Key Beach can accommodate divers as well. Tarpon, bonefish and barracuda are all game in this angler's wonderland. Tiny tropicals flit through the network of finger corals, and lobsters hide out under ledges. Don't forget the bug repellent and the marshmal-



#### USS STURTEVANT

Accidentally running into the same U.S. minefield that claimed the life of the nearby Edward Luckenbach, this 314-foot destroyer lies in two parts on the sandy bottom. Freighters Bosikka

and Gumbar are also in the neighborhood. Expect to see jewfish, cobia and grouper in 20- to 25-foot vis.

# NARRAGANSETT BAY, R.I.

A thousand miles north of the Tropic of Cancer, this New England tourist hot spot plays summer home to warm-water species.

BY PHAEDRA HISE

ight feet under, I'm waiting to catch a glimpse of tropical fish—in Rhode Island. I know, I laughed too. But divers have told me they're here; that the fish are just hard to see. *Right*. They told me to be patient and wait a long time. *Sure*. Just as I'm beginning to think I may end up wearing the paper bag in this aquatic snipe hunt, I see a yellow flash dart under a rock. A spotfin butterfly?

Eddies from the Gulf Stream swirl as far north as Cape Cod, flushing tropical fish eggs and fry into Narragansett Bay's chilly waters. Normally the baby cowfish, pipefish, butter-

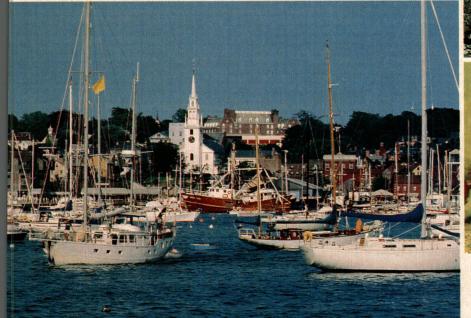
fly and squirrelfish would freeze to death. But from July through October, the bay's shallower coves heat up just enough to hatch eggs and nurse the young. For months I thought dive shop owners were pulling my leg, but it's true: Head for Rhode Island in the fall and you can dive the tropics.

Narragansett Bay is New England's dive mecca. Granted, there's no reef and 15 feet of visibility is considered spectacular. But the water is about 10 degrees warmer than it is north of Cape Cod, and the marine life is more varied. Crabs, lobsters, scallops and anemones crowd the rocky shoals. Flounders and schooling fry dart among tall eelgrass growing on











JDY MARTINEZ

THE JAMESTOWN WINDMILL HAS OVERLOOKED NARRAGANSETT BAY SINCE 1787 (TOP); NORTHERN ROCK CRABS OFTEN SPORT ALGAE AND BARNACLES FOR CAMOUFLAGE (ABOVE); PLEASURE BOATS JAM NEWPORT HARBOR (LEFT).

the sandy flats. Ancient lobster traps and dock posts sprout mussels and bulbous seaweed. There's plenty of slow-moving marine life to keep any diver's head in the rocks.

During the summer, the shallow bay at Newport's Green Bridge is crowded with dive flags and pleasure boats. Three-foot tides mean the chunk of rock easily negotiated on the way out might block the return. Surface swimming against the ebbing tide burns air, and energy, fast. On the shallow bottom a mild surge waves the long eelgrass back and forth-kind of disorienting. When the surge washes you and the seaweed in one direction, you may not even realize you're moving until you glimpse the sandy bottom underneath, shooting backward under the seaweed.

Like many of Narragansett's coves, both sides of this sandy shallow site are lined with rock. A slow dive with my head stuck in the rocks always turns up an amazing variety of life. Countless hermit crabs scurry across the rocks while brown and blue crabs lurk in the crannies—some with bodies a foot across. Lightly tapping a plattersized flounder with a stick provokes a quick flex, shooting up my arm like an electric jolt as the fish glides away. Blue-eyed scallops blink open and shut, baby anemones stretch from the rocks, and fat red starfish loll in the crevices. My buddies have seen silvery eels and fluffy nudibranchs. Green Bridge is a popular cove for fall tropical fish collecting, and on a cloudy day, heading for beach sites like this one will usually turn up an uncrowded shore protected from the chop.

Fort Wetherill on Conanicut Island is one of the most popular sites in the bay. There's a right and left cove, and a narrow path (tricky to negotiate with gear) leading down to an entry cutout in the rocks. No sandy cove here; the rocks creep right up to the surface, and the water's so clear that it's not unusual to spot a few critters while suiting up. Swimming out over the rock tops can be tricky, and heading out at high tide will keep the topside gear bags from floating away while you're gone. Don't worry about the tiny jellies sprinkled on the water's

surface, they don't sting.

The tops of the miniature rock canyons at Fort Wetherill lie about 20 feet below the surface and the valleys stretch about 10 feet below that. Baby starfish and schools of minnows lurk in the seaweed beds. Sculpin skulk in and out of abandoned lobster traps that anchor more anemones and clumps of seaweed. Lobsters hide under the rocks, floundering around slowly when coaxed out. The underwater hills and valleys can all start to look the same, but a compass helps straighten them out. Boat traffic isn't as heavy here as elsewhere, so surfacing at the end of the dive is another way to get home.

Heading south to the tip of Conanicut Island, Beavertail Point is one of the bay's most dramatic dive sites. From the point, marked with a lighthouse, sloping rock canyons and tunnels drop from 20 to 70 feet. The depths reveal some of Narragansett's bigger fish-tautog, striped bass, bluefish, scup-which attract eager spearfishers. Because it's an unprotected jetty, Beavertail can be a tough dive in rough weather. Even farther south, toward Block Island, the sunken German U-853 submarine lies in 130 feet of water. Dive shops occasionally run boat dives (usually by special charter) for experienced wreck divers, who can also visit the nearby Black Point, a collier sunk by the U-853 after the end of World War II. The submarine, unaware that Germany had surrendered days earlier, torpedoed the ship as she turned into Narragansett Bay, then was depth-charged.

At Fort Getty town park in Jamestown, also on Conanicut Island, dive-friendly beaches snuggle up to picnic campsites. The long shallow coves hold lots of macro life in the sand or along the rocky edges, making it a good site for the day's last dive or snorkel. And after drying off, fire up the grill for dinner among the wild rose bushes, or head into Newport to join the bar-hoppers.

Topside, Rhode Island's beaches are the boast of New England. Newport's fingernails of pale sand attract gaggles of tourists and rich Yankee yachtsmen, visiting the world famous

#### Dive In

Conanicut Island is commonly referred to as Jamestown, as the city covers most of the island; Newport is on Aquidneck Island. To reach either island, take I-95 (north from Connecticut, or south from Massachusetts) to Providence, then to I-195. Follow the signs, and have \$2 ready for the toll bridge.

High season for tourists runs from Memorial Day to Labor Day, but diving runs from Easter through Thanksgiving. Average water temperatures stay in the 50Fs until late summer when they rise to the upper 60Fs with an average vis of 12 to 15 feet. (The water is usually about 10 degrees warmer than above Cape Cod, so visibility is inversely worse.) Some of Narragansett's rocky shores are tough to negotiate in full dive regalia, but beach entry points abound. Pleasure boats crowd the water, so take a dive flag.

At Green Bridge in Newport, divers vie for scarce parking along the bridge that crosses the bay. Newport's King's Beach and Jamestown's Fort Wetherill both have free parking lots. For tourist information in Newport, call the visitor's bureau at (800) 326-6030. During high season, lodging ranges from around \$60 at a bed and breakfast to more than \$200 at the posher hotels. In Jamestown, Fort Getty town park is open from May 21 to Oct. 3 with campsites. For reservations call the recreation clerk at (401) 423-7211. Campsites are \$22 for RVs, \$17 for tents. The \$6 entry fee for day-trippers buys parking, beach access and access to scarce port-a-johns.

For about \$45, Ocean State Scuba in Jamestown (401-423-1662) runs two-tank boat dives. Divers can park for free at the shop and ride a shuttle van to the boat. Narragansett Pier Dive Shop on the Rhode Island mainland is another full-service shop (401-783-2225). United Divers in Providence (401-274-4482) is a good pit stop for equipment if Ocean State is booked.

jazz festival and Tennis Hall of Fame. In summer, the waterfront strip of shops and bars is packed. Most of the spectacular "summer cottages" along the Cliff Walk behind mansion-studded Bellevue Avenue are open for tours. Among them is Rosecliff, where Mia Farrow and Robert Redford filmed *The Great Gatsby*.

Del's Lemonade stands are a Rhode Island institution—offering a slushy, tart lemonade that's a mix between fine Italian ice and a 7-11 Slurpee. Clam huts like Flo's Clam Shack dot the roadsides, and a basket of steamers or quahog fritters makes a fine après-dive lunch.

Phaedra Hise lives in Boston, where she is a reporter for Inc. magazine.

# Sarasota, fla.

Big cars and big fish collide on the west coast of Florida.

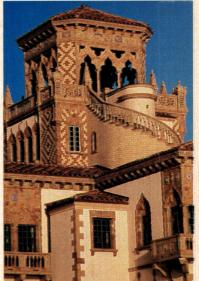
BY NICK LUCEY

he bulky behemoth is shooting an azimuth straight for me, its wide crystalline eyes sizing me up, its iridescent armor deflecting sunbeams, its dynamic fins guiding its hulking mass ever closer. On Florida's west coast, encounters with this feared beast are frighteningly common, even in broad daylight.

As the Cadillac DeVille cruises by, I glimpse its bumper sticker: RETIREMENT AIN'T FOR SISSIES. Yep, that's the Sarasota spirit—live fast, retire faster.

Sarasota is the beating heart of the Cadillac and Cardigan Coast, pumping its lifeblood through the Tamiami Trail and I-75 arteries to its vital organs: Venice, Bradenton, Naples, St. Petersburg, Tampa, Fort Meyers. Perched on the rim of the great Gulf bathtub, Sarasota is breezy banyan trees, tiled roofs plopped on stucco houses, swanky art galleries, white-sand beaches and laid-back retirement communities. And the names are pure Florida: Siesta Key, Lido Beach, Shark Piss Reef.







BIG FISH, LIKE THIS LEMON SHARK (ABOVE), ARE FREQUENT VISITORS TO THE MANY WRECKS OFF FLORIDA'S WEST COAST; GROUPER, SPONGES AND PORKFISH (RIGHT) BRIGHTEN LIMESTONE LEDGES; A FANCIFUL TOWER MARKS SARASOTA'S RINGLING MUSEUM OF ART (TOP).



#### Dive In

Sarasota is a bustling fishing and sailing port of call an hour south of Tampa, with a population of 50,000. You'll love seeing all the fish you may have missed while diving at the Mote Marine Science Aquarium, strolling around the glitzy St. Armands Circle shopping district, soaking up some culture at The Ringling Museum of Art and a wide array of private galleries, and feeling the sand between your toes at Siesta Beach, called by some the whitest and finest on Earth.

Offshore, the attraction is fish and lots of it. Summer is diving's prime time here, with visibility in the 30-foot range on sites close to shore, and as much as 100 feet farther offshore. Water temperatures in the winter can drop as low as the high 50Fs (full wetsuit), but expect mid- to high 80Fs in the summer (dive skin). On land, temperatures range from 70Fs to high 80Fs in summer and 60Fs to 70Fs in winter. Sunblock should always be considered part of your dive gear regardless the season.

Most local dive boats are small and fast, and operate out of marinas from Sarasota to Venice. Charters can be arranged at several dive shops along the coast. A two-tank dive will run you about \$50.

#### SARASOTA

- Aqua Sports Unlimited, (813) 755-5800
   Dolphin Dive Center, (813) 924-2785
- © Florida Down Under, (813) 922-3483
- O Ocean Pro Dive Shop Inc., (813) 924-3483 O Scuba Quest Pro Dive Center, (813) 925-7055

#### VENICE

O Gulf Coast Dive Center Inc., (813) 484-3483 O Scuba Quest Pro Dive Center, (813) 497-5985

For more information about accommodations, topside attractions and visitor services, contact the Sarasota Convention and Visitors Bureau at (800) 522-9799 or (813) 957-1877.

Shark Piss Reef? Some of the best diving in these parts can be found on ledges—limestone outcroppings off Sarasota and Venice—that are just a sunblock application away from most marinas. The drab uniformity of these ledges is interrupted by Crayola-yellow encrusting and tube sponges. Generally running northeast to southwest in up to 60 feet of water, these ledges (locals call them reefs) boast easy access, big fish and on a good day, 30-foot vis.

"Think of the Gulf as a desert," says Al Franklin, a Sarasota dive operator who's been diving these waters for 33 years. "These ledges are oases for fish life around here."

And the marine life roster reads like the daily specials at a Sarasota fish market—grouper, cobia, amberjack,

pompano, mackerel, sheepshead, snapper, lobster. Ogling some of this seafood on our first ledge this afternoon, my BC suddenly feels like a bib, my dive knife becomes dinner cutlery and I'm drooling in some kind of bizarre gastronomic hallucination.

A lone remora merges with my course and reality gushes in. Its sucker disc is bare, and I wonder whether this hitchhiker is looking for a free ride across the ledge on the wetsuit express. I'm flattered that he considers me one of the sea's own, but the obvious question soon follows. Where, or better yet whom, did this little guy come from? My buddy's a fuzzy 15 feet away in the predictably low inshore vis, so the "where's the shark" excitement sets in.

A couple of spiny lobsters snoozing under a rocky roof plunges me back into my caviar dreams. Fighting the urge to set a dining table right there on the bottom, a dark swirling mass is joining me for dinner. What's on the menu? The sharp head and tail fin silhouette look frighteningly familiar. But it's only cobia. Sheep in wolves' clothing, these 30-pounders are on their ravenous migratory sprint, and looking a lot like ol' Sharkey in this 10-foot vis. But the fish down here seem to make up for the murk—if the visibility's short, they'll swim a little closer for you.

The critters show Southern hospitality in other ways, too-they give you souvenirs to take home. Back when the history time line was just starting to grow, a finned fiend far larger than any on I-75 roamed the primordial Gulf soup. Carcharodon megalodon, prehistoric sharks big as a double-wide trailer, mysteriously died en masse at what is today Venice Beach. Their teeth polka-dot the bottom from the shoreline to 40 yards out in 18 feet of water. Expect no more than four-foot visibility. But keep in mind, for some people this is not just an adventure—it's a job. These choppers can measure up to six inches and fetch a couple hundred dollars from collectors.

If that's not enough to fill your catch bag, drive inland to the fossil beds along the Peace River near Arca-

dia 40 miles to the east. With vis at zero, a wading depth of three feet and edgy gators, this is a full-contact hunt with fantastic rewards but no nitrogen. Sharks' teeth, arrowheads and prehistoric mammal remains can be found by sifting through the bottom with gloves.

If you prefer human wreck artifacts, try the shallow and sweet Sugar (also called Molasses) Barge or the deep and unforgiving Bay Ronto.

The 75-foot Sugar Barge is 15 minutes north of Sarasota at Bradenton Beach, resting in 10 to 20 feet of water 100 yards offshore. Just look for a metal post jutting out of the water. Beneath the surface, you'll find soft coral, tube and ball sponges and fish that will make you ask yourself how many miles out you are. There's less traffic and much better vis offshore—the farther the better.

The only traffic you'll find at the 400-foot freighter Bay Ronto is bumper-to-bumper amberjack, jewfish and barracuda. The vessel went down in 1919 when her grain cargo shifted, and miraculously, all crew members were spared. Belly-up 110 feet down and 30 miles out, her hull lay cracked in half on the soft sandy bottom. The Bay Ronto's an advanced dive worth the safety stop and bumpy ride.

Want to work your dive tables a little more? Try the Barge and Hopper in 80 feet of water 19 miles west of Sarasota or Six Boats at about the same depth 16 miles off Venice. Here, once again, big fish and photo opportunities are plentiful. On a good day in summer, these offshore wrecks boast 100-foot vis.

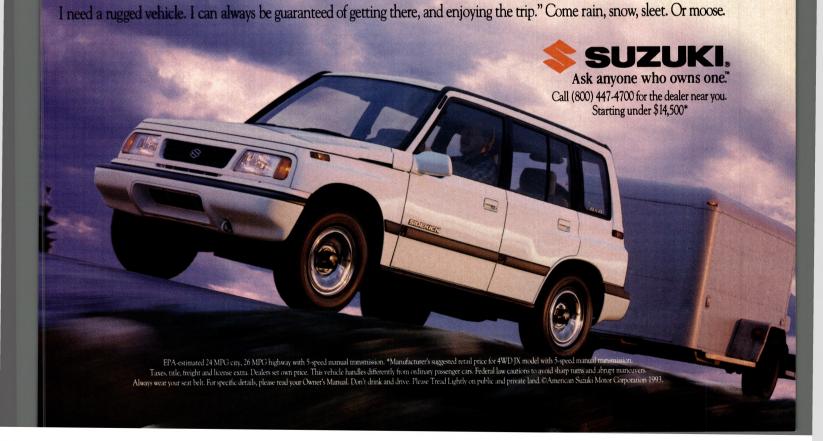
"There are more than 4,000 dive sites in this area; most are nothing more than a LORAN coordinate," says Franklin, grinning. "In fact, when we take divers out, we sometimes let them name the site."

Back on my no-name ledge, my stomach's grumbling so loud it's scaring the fish, and I signal to my buddy that I'm low on air. As the cobia scatter, an old and wise one swims close. Right before he fins off, his muddy eyes seem to taunt me: "The Gulf ain't for sissies."

RSD Assistant Editor Nick Lucey prefers his fish with a nice Chardonnay.

riving rains. Jack-knifed trucks. Way too many moose. Last year, Tom Marsh bought, a Suzuki 4-door Sidekick 4x4 in Chicago, loaded up his earthly possessions, and left for Alaska, in a convoy with a few friends. When they got to the mountainous Al-Can Highway, Tom's friends decided he should lead. "They envisioned having to wait for me to catch up on every hill." Easy enough to envision: Tom was towing a 1,500-lb trailer. "Well, surprise, surprise. I could pull all but the steepest hills in 3rd gear." The Sidekick has a powerful 16-valve engine. "We ran into rotten weather, horrible accidents and moose."

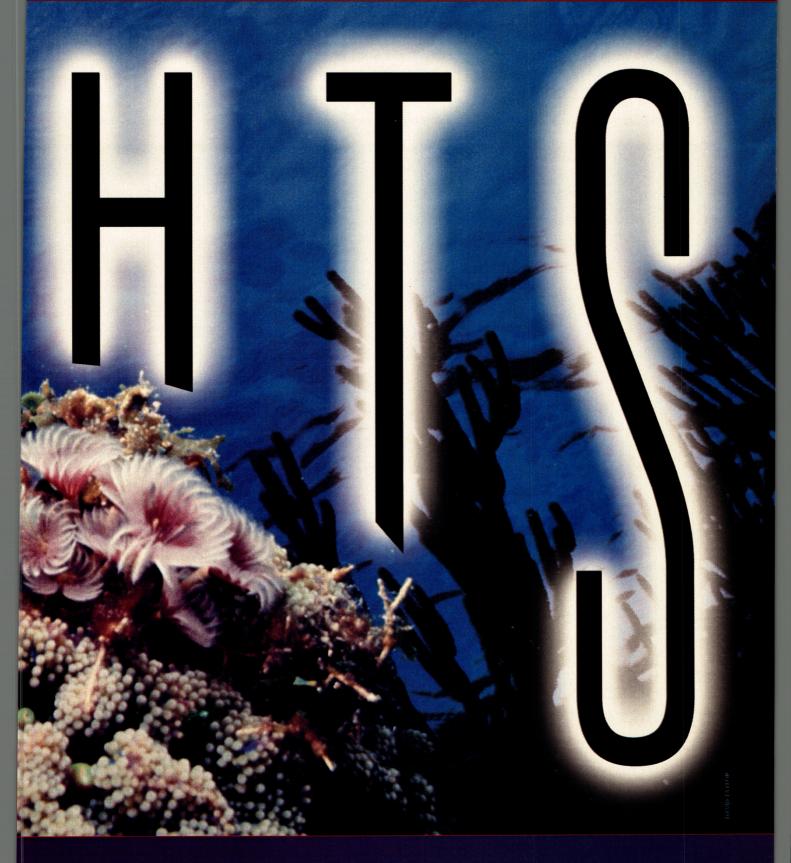
Moose? "Standing in the middle of the road, usually as we came around a sharp curve". Fortunately, the Sidekick also has a rear-wheel anti-lock brake system. "I cannot tell you how dependable the Sidekick is. I'll own one as long as



festival of

There's no shortage of choices when you need a little illumination.

BY JON HARDY AND JOHN BRUMM



We test burn time, beam width and brightness to find the very best beacons.

IN A SPORT so heavily dependent on equipment, probably the most underappreciated and overlooked piece of gear is the dive light. Vital for night diving, cave diving and wreck diving, a light can also do more to liven up a typical day plunge than just about any other accessory. Below 40 feet a good dive light can ignite the colors of a reef

and illuminate dark holes where whole communities of reef creatures would otherwise go unnoticed.

Today's dive lights range from low-power penlights to beams bright enough for night use but still compact enough to fit in a BC pocket, to the heavy-duty powermeisters that'll light up a nighttime ocean floor like the Las

Vegas strip.

Although underwater lights have improved a great deal over the years, they still have a tendency to fail with more regularity than just about any other piece of gear. From floods to failing switches, burnt bulbs to batteries draining while still in the dive bag, these problems are confronted head-on,

Features [All	Evaluat	Evaluation													
Manufaturer/ Model	Depth Rating Col.	Warranty	Type (NON=wmedalpush RE=Tech	Number I	Burn Time – 1	Included?	Extra Bulb	Lanyard	SUG. RETAIL	Gip Type	Size	Fit BC Pocket?	Replacement is	Locking Switch?	OnOff One-Handed?
ATLANTIC SPORTS Northstar NS-4	300' 8	5 years	Non	4 C	2 to 6	Yes	Yes	Yes	\$35.00	Barrel	Small	Yes	No	Yes	Yes
DACOR UL750 UL850 UL1000	250' I 250' I 250' 3	l year l year l year	Non Re Non	I Lant I Lant 4 D		No Yes No	No No No	No No Yes	\$75.00 \$129.95 \$55.00	Lantern Lantern Lantern/Pistol	Large Large Large	No No No	Yes Yes Yes	No No Yes	Yes Yes Yes
IKELITE Maxi-C/FL Mini-C Mini-C/FL Modular SuperLite RCD Super C-HR Super C-HX	300' 5 300' 17 300' 5 300' 2 300' 6 300' 5 300' 5	l year l year l year l year l year l year l year	Non Non Non Re Non Re Non	4 C 4 C 4 C 6 D (bat 4 D 6 C	2 to 6 2 to 6 2 to 6 2 to 6 t. pack) <2 6 to 12 <2 2 to 6	Yes Yes Yes Yes Yes Yes Yes	No No No No No No	No No No No No No	\$69.95 \$33.95 \$59.95 \$259.95 \$59.95 \$169.95 \$59.95	Barrel Barrel Barrel Lantern/Pistol Pistol Barrel Barrel	Large Small Medium Large Large Large Large	No Yes Yes No No No	No Yes No Yes Yes No No	No Yes No Yes Yes Yes	Yes Yes Yes Yes Yes Yes
OCEANIC Mini-Hylite Ocean Pro 101	200' I 200' I	l year	Non Re	2 AAA		Yes Yes	No No	No No	\$17.00 \$179.00	Barrel Lantern	Very small	Yes No	Yes Yes	No No	No Yes
PELICAN BriteLite Pro 5000 Dual Six Pro 4600 King Pelican Stealth Lite Super MityLite Super Sabre	600' 6 600' 1 600' 4 600' 5 600' 1 2,000' 3	Lifetime Lifetime Lifetime Lifetime Lifetime Lifetime		4 D 8 D 8 D 4 AA 2 AAA 3 C	6 to 12 12 to 24 6 to 12 2 to 6	No No No No Yes	No No No No No	Yes Yes Yes Yes No Yes	\$62.95 \$99.95 \$83.85 \$24.10 \$13.95 \$28.60	Pistol Lantern/Pistol Lantern/Pistol Barrel Barrel Barrel	Large Large Large Small Very small Medium	No No No Yes Yes	Yes Yes Yes Yes Yes Yes	Yes Yes Yes No No No	Yes Yes Yes Yes No
PRINCETON TEC Tec 40 Tec 400 Tec 600 Tec 4000 Tec 8000	500' 5 300' 5 300' 5 1,500' 5 750' 5	Lifetime Lifetime Lifetime Lifetime Lifetime	Non Non Non Non	4 AA 4 C 6 C 4 D 8 D	2 to 6 2 to 6 2 to 6 6 to 12 6 to 12	Yes Yes Yes Yes Yes	No Yes Yes Yes Yes	Yes Yes Yes Yes Yes	\$18.95 \$39.95 \$46.95 \$56.95 \$84.95	Barrel Barrel Barrel Lantern/Pistol Lantern/Pistol	Small Small Medium Large Large	Yes Yes Yes No	No Yes Yes Yes Yes	No No No Yes Yes	No Yes Yes Yes Yes
SKYLITE SL350 SL1401 SL3401 SL3404	98' 2 164' 2 164' 2 164' 2	l year l year l year l year	Non Non Non Non	4 AA 4 D 4 AA 4 AA	<2 6 to 12 <2 <2	No No No	No Yes Yes Yes	No No No Yes	\$45.00 \$29.90 \$19.90 \$23.90	Barrel Barrel Barrel Barrel	Large Large Medium Small	No No No Yes	Yes Yes Yes	No No No No	Yes Yes Yes No
TEKTITE Mini Torch Torch 2C Torch 3C Torch 4C	2,000' 4 2,000' 4 2,000' 4 500' 4	5 years 5 years 5 years 5 years	Non Non Non Non	3 AA 2 C 3 C 4 C	2 to 6 6 to 12 2 to 6 2 to 6	Yes Yes Yes Yes	No Yes No Yes	No No Yes No	\$25.00 \$22.50 \$33.00 \$39.95	Barrel Barrel Barrel Barrel	Small Small Small Small	Yes Yes Yes Yes	Yes Yes Yes Yes	No No No No	No No No Yes
TUSA Hyperform TUL 1000	600' 5	Lifetime	Non	4 AA	2 to 6	No	No	Yes	\$28.00	Barrel	Small	Yes	Yes	No	Yes
UNDERWATER KINET MiniQ40 SL4 SL6 UK400 UK400R UK800R UK1200	500' 2 500' 5 500' 5 500' 5 500' 4 500' 2 500' 2 500' 3	Lifetime Lifetime Lifetime Lifetime Lifetime Lifetime Lifetime	Non Non Non Non Non Re Re	2 DL1: 4 AA 4 C 6 C 4 D 4 D (bat 8 D		Yes Yes Yes Yes Yes Yes Yes No	No No No No No No No	No No Yes No Yes Yes Yes Yes	\$34.50 \$23.90 \$34.00 \$43.50 \$54.50 \$162.00 \$258.00 \$84.00	Barrel Barrel Barrel Barrel Pistol Pistol Lantern/Pistol Lantern/Pistol	Small Small Small Medium Large Large Large	Yes Yes Yes Yes No No No	Yes No Yes Yes No Yes Yes No	No No No No Yes Yes Yes Yes	No No Yes Yes Yes Yes Yes

#### Shedding Light on Features

DEPTH RATINGS ➤ The depth to which the light will operate. It should substantially exceed the greatest depth to which the light will ever be used.

COLORS AVAILABLE ▶ The number of choices you

WARRANTY > A reflection of the manufacturer's stated policy. The dive store's and manufacturer's reputation for backing up products is even more important than the exact terms.

BATTERIES ► Information indicates nonrechargeable (non) or rechargeable (re), the number of batteries, the size, burn times and whether or not the batteries are

included in the purchase price.

BURN TIME > An imprecise measurement that's measured differently by different manufacturers. Your use will vary so much from a continuous burn test that specific times do not provide a fair comparisor. cific times do not provide a fair comparison. Therefore, ranges of burn times have been listed; less than two hours, two to six hours, six to 12 hours, 12 to 24 hours and over 24 hours

EXTRA BULB AND LANYARD INCLUDED > Indicates whether or not these items are included in the

purchase price.
SUGGESTED RETAIL PRICE > The price for a product suggested by the manufacturer. However, in many cases this price may be lower in dive stores due to competitive pricing.

#### Function and Performance

GRIP ➤ Defined as pistol, lantern or barrel.

SIZE AND FIT BC POCKET > Should be looked at together. We used common-sized BC pocket that all small lights would fit into, that all large lights would not fit into, and that medium-sized lights would fit or not based on their shape.

REPLACEMENT IS SELF-EVIDENT ▶ If test members could take apart the light and correctly replace the bulb and batteries without instructions, we gave this a "yes." We assumed that, like most divers, you may not be able to find the instructions when replacement time

LOCKING SWITCH ▶ Prevents a light from inadvertently turning on in a dive bag or BC pocket. This feature doesn't apply to lights that are activated by twisting the lens. Such lights, however, can be accidentally turned on by water pressure if the cap has been pretwisted close to the activation point.

TURNING ON/OFF ONE-HANDED: A valuable feature if one hand is occupied with other equipment or dealing with an

emergency.

SINKS > Lights that do not sink may be easier to find if lost, but may get in the way while under water as they hang lens-up rather than lens-down. The question of sinking or floating depends largely on personal preference

reduced or even eliminated in some new designs.

We gathered working samples from the top manufacturers and distributors of dive lights and put them through RSD's testing regimen. Avoiding technical, video or photo strobe lights, we focused on hand-held, battery-powered dive lights as well as the

chart is based on F	Rodale's Scuba Divin	g tests and r	neasurements.
Sinks?	Besim Width	Intensity	Owner's Instructions
Yes	Wide	Medium	Good
No No No	Medium Medium Medium	High High High	Poor Poor Good
No Yes Yes Yes	Narrow Narrow Narrow Narrow	High Medium Medium High	Good Good Good Good
Yes Yes Yes	Narrow Medium Narrow	High High High	Good Good Good
Yes Yes	Medium Medium	Very low High	None Good
Yes Yes Yes Yes Yes Yes	Narrow Narrow/medium Narrow/medium Narrow Narrow Medium	High High High High Low High	Good Good Good Good Good
Yes Yes Yes Yes	Medium Narrow Narrow Medium	High Medium High Medium	None Good Good Good Good
Yes No Yes No No	Medium Narrow Narrow Medium Narrow	High High Hedium Medium	Good Good Good Good
Yes Yes Yes Yes	Wide Wide Wide Wide	Low Low Medium Low	Good Good Good Good
Yes	Narrow	High	Good
Yes Yes Yes Yes No Yes	Narrow Medium Narrow Wide Wide Wide	Medium Medium High High High High	Good Good Good Good Good
Yes Yes	Wide Wide	High High	Good Good

and the use of the light.

BEAM WIDTH > In a dark photo studio we placed each light at a preset distance from a flat white wall and measured the diameter of both the inner hot spot (primary beam) and the outer cone of light (peripheral beam). All these numbers were compared to the manufacturers' data. The outer beam of light (being much weaker) is rapidly lost when under water. We also found very little relationship between our data and the manufacturers'. Therefore, we defined beam width by the primary beam and added a third category (medium) in addition to the commonly used narrow and wide categories.

INTENSITY > At the same time and with the same setup in the photo studio, we used a light meter to measure intensity. Readings were taken on the edge of both the inner and outer cones of light. Values were then compared to provide ranges of very low, low, medium and high intensity.

new generation of battery-powered personal locator lights; or, in other words, nonspecialty dive lights that an average fun diver would take under water.

#### **GOT A LIGHT, PAL?**

Reflecting the trend toward smaller but brighter lights, several models in this review are small or medium in size, but rank high in the intensity category. However, the brightest lights with the longest burn times are still the large lights.

What you get from a light in terms of intensity, beam width and duration depends on the type, size and number of batteries it uses; the type and quality of the reflector; the type of bulb; and how the whole package is put together.

As anyone who's gone night diving knows, there's more to finding the right

your hand? Can you turn it on and off with one hand, if that matters?

Now, with the lights you like best, return to the sales floor and try opening them up, as if you were going to replace the batteries or the bulbs. How "user-friendly" are the lights? Try doing this step without looking at the instructions or being walked through it by the salesperson.

What is the "real price" of each light? The light you carry out of the dive store should be something you can go diving with immediately. That is, a light already loaded with batteries and equipped with a charger (if rechargeable batteries are used), fitted with a wrist lanyard and supplied with an extra bulb. The price that includes these items is the "real price."

How available are parts such as O-

					BAT	TE	RIES-			5.5.	7
Manufacturer/ G	Rating	Colors	Warranty	Type	Number	Size	Burn Time	Included?	Replacement Self.	Sinks	SUG. RETAIL
PRINCETON TEC											
Aqua Flare 1,0	000	5	Lifetime	Non	2	AA	2 to 6	Yes	No	Yes	\$17.95
TEKTITE											
Mark III 1,0	000	4	5 years	Non	3	AA	6 to 12	Yes	Yes	Yes	\$20.00
Mark Lite 1,0	000	4	5 years	Non	1	AA	6 to 12	Yes	Yes	Yes	\$14.95
Mark Lite Firefly 1,0	000	4	5 years	Non	2	N	24+	Yes	No	No	\$29.00
Mark Lite Strobe 1,0	000	4	l year	Non	- 1	AA	6 to 12	Yes	Yes	Yes	\$49.00
UNDERWATER KINETICS											
Dive Beacon 500	0	1	Lifetime	Non	2	AAA	12 to 24	Yes	Yes	Yes	\$21.00

light than matching its color with your BC. By gathering information from catalogs, magazine articles like this one, and your local dive store professional, you should be able to select the light best suited to your needs. Most of all, ask yourself the following:

What will be the light's main purpose? Night diving? Specialized day diving, as in wreck penetrations? Are you looking for a primary light source or a secondary (back-up) light? What kind of water conditions do you commonly dive in? Are you a gadget freak, or do you just want something that lights up when you flip the switch?

Once you've selected a few lights that might be contenders, go to the bathroom. No joke. It's probably the only place in the dive store you can make dark enough to conduct a light test. With the overhead lights off, try comparing the lights by shining them on the wall, checking beam intensity and width. Which light feels best in

rings, bulbs and batteries? Buying a less expensive off-brand makes no sense if you can't get replacement parts without going to the manufacturer. Your dive store should be able to handle all replacements and the light should be in common distribution.

#### RECHARGEABLE LIGHTS

We tested a number of lights with rechargeable batteries, which are less wasteful and cost less in the long run if you use your light a great deal. In addition, rechargeables are often among the easiest batteries to remove and replace and often produce much brighter beams than nonrechargeables.

On the downside, rechargeable dive lights are expensive, often costing more than twice as much as similar nonrechargeable lights. Rechargeable batteries or battery packs are also more expensive than throwaway batteries. They provide less burn time, drop rapidly in intensity





#### On Display PELICAN

- KING PELICAN
  DUAL SIX PRO 4600 BRITELITE PRO 5000
- SUPER SABRE
- SUPER MITYLITE STEALTH LITE

#### IKELITE

- RCD
- SUPER C-HR SUPER C-HX
- 10 MAXI-C/FL
- II MODULAR SUPER-LITE
- MINI-C/FL

#### 13 MINI-C

- TEKTITE 14 TORCH 4C
- 15 TORCH 3C
- 16 TORCH 2C MARK LITE FIREFLY
- 18 MARK LITE STROBE MINI TORCH
- 20 MARK LITE
- 21 MARK III

#### PRINCETON TEC

- 22 TEC 8000 23 TEC 600
- 24 TEC 4000
- 25 TEC 40
- 26 AQUA FLARE 27 TEC 400

#### UNDERWATER KINETICS

- 28 UK400R
- 29 UK400 30 UK800R
- 31 UK1200
- 32 SL6
- 33 SL4
- 34 MINIQ40 35 MINIQ20
- 36 DIVE BEACON

#### DACOR 37 UL850

- 39 UL1000
- SKYLITE 40 SL3401
- 41 SL1401
- 42 SL350

- MISCELLANEOUS 4 ATLANTIC SPORTS NORTHSTAR NS-4
- 45 TUSA HYPERFORM TUL 1000
- OCEANIC OCEAN PRO 101
- OCEANIC MINI-HYLITE

near the end of the power charge, and often require up to 12 hours to recharge. Consequently, it makes sense to have a second battery pack on hand, especially if you plan on making repetitive dives. What's more, recharging requires a power source that may not be available at the dive site or on the boat and the recharger may not work on local current without an adapter. Add to all this the need to recycle or recharge these batteries while in storage and you have a power system that might not be practical for many recreational diving scenarios.

Most dive lights that operate on nonrechargeable batteries can actually be fitted with standard rechargeable batteries and used in concert with a basic battery charger found in most electronics stores. Check the owner's manual for more information.

#### A LITTLE SOMETHING EXTRA

Red lenses are available for many underwater lights. These help protect your night vision and are said to have less of an effect on marine life than white light, but you also lose a significant amount of light intensity.

A number of the lights tested have double O-ring seals. It makes sense that they would reduce the likelihood of flooding, but we can't offer any proof of this.

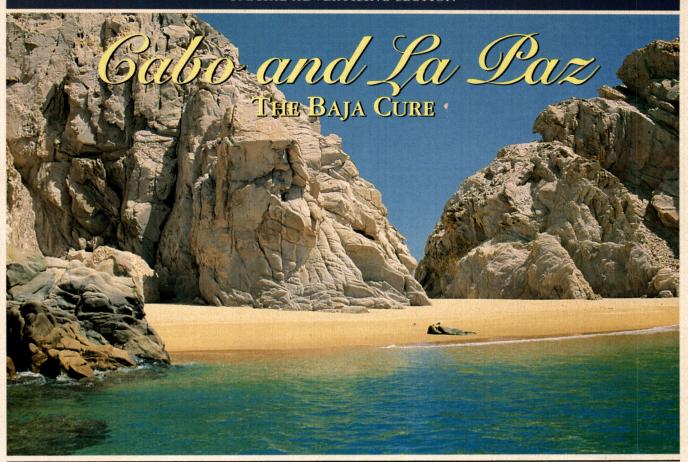
A recent innovation in underwater lighting is the "two lights in one" dive light that offers a regular dive light plus a fluorescent tube light located in the barrel handle. The fluorescent tube draws less energy, can be used out of

the water for gearing up at night, to read gauges and as an emergency backup to the main light in the unit.

However, even though the fluorescent tube uses less energy it still is a drain on the batteries. And the light is bright enough to destroy your night vision if you look directly at it. The real problem, though, is in the tube itself; like all fluorescent bulbs, this barrel tube is fragile. It is easy to break under normal use and, once broken, is extremely difficult to replace.

#### A SHOT IN THE DARK

Battery-powered personal locator lights, or PLLs, are growing in popularity among avid night divers. Designed to replace chemical lights, PLLs may cost a bit more initially, but quickly pay for them- (Continued on page 97)



Sick of the city? Suffering from hassle and hustle? Feeling that tension, pres sure, pain? The doctor is in and he prescribes a dose of warm, clear-water diving—the Baja cure.

You'll soon see why divers are calling southern Baja California and the Sea of Cortez "California's Caribbean." From Los Angeles, it takes two hours in an airline seat and a sprint across crystal-white sand to put you among yellow and purple corals, red and orange sponges, giant manta rays, marlin, whale sharks and one of the biggest collections of both tropical and pelagic fish in the world. And in another hour, you can be back on the beach sipping a margarita and enjoying the tropical sunset. Was it only this morning you were stuck in traffic?

The Sea of Cortez may be the world's greatest fish trap, and Cabo stands at its gate. Here, the warm, sheltered waters of the gulf meet the cold Pacific current and two marine worlds, tropical and pelagic, meet and mix, creating Cabo's unique collection of marine life.

Some of the best Baja diving is right in the bay of Cabo San Lucas and among the pinnacles around Los Arco at Land's End, where jacks, rays and even whales from the Pacific mingle with colorful angels, grunts and other reef fish. Here too is the strange underwater sand falls made famous by Jacques Cousteau, where white sand pours over a wall and disappears into an apparently bottomless abyss.

All that just steps from the fast-paced nightlife and glamour of Cabo San Lucas, where top-flight resorts and nightclubs cater to an international jet set drawn by Cabo's world-class, big-game fishing.

A short drive to the northeast shows you the other face of Mexico's Baja. A dirt road bounces down a desert canyon and ends at a sugar-white sand beach and a clear-blue bay. No hotels here, only tall cardon cactus watching over one of western North America's only aggregations of hard coral, the Pulmo reef. Nine dive sites let you wander among giant yellow and purple fans, stag and brain corals, colorful Moorish idols, clarion angels and cabrilla.

Farther north into the Sea is the city of La Paz. Though it's the capital of Baja California, La Paz is a charming, peaceful town, hardly changed since it was founded by the conquistador Hernan Cortes in 1535.

La Paz is your base for diving the El Bajo seamount, three deep pinnacles covered with yellow and black corals and red sea fans. Here gather the big boys—schools of hammerhead sharks, manta rays and giant whale sharks, not to



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\$195.00

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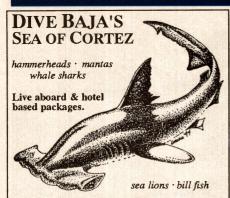
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mention the trophy-sized marlin, dorado and tuna that have made the Sea of Cortez famous.

After this adrenaline rush, you'll need something to slow your pulse rate, and La Paz has it. Take a walk on the beach, watch the sun set across the bay, sip a cerveza in a beachfront palapa and count your blessings. The traffic is far away now. Feeling better?

#### BAJA DIVING SERVICE

Baja Diving Service in La Paz is a full-service dive facility offering daily two-tank dive trips on one of its 10 dive boats, snorkeling tours, equipment rentals and PADI and NAUI certification courses.

Sea lions are a common sight in and out of the waters near Cabo San Lucas.

rentals and PADI and NAUI certification courses. Other services available include hotel pickup and dropoff, night dives, whale watching, camping and diving trips, sea kayaking and city tours.

#### Take A Ride On The Wild Side!

The Hotel Solmar and Amigos Del Mar team up to give you what "Cabo is all about," great value, world-class diving and Cabo's most beautiful hotel and beach. Fine dining, all rooms A.C., swimming pool, tennis, fishing,



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#### TIO WATERSPORTS

Tio Watersports is located on the beach in Cabo San Lucas in front of both the Melia hotels (Melia Cabo Real and Melia San Lucas). Tio Watersports is a PADI resort center, providing daily dive trips to Sand Falls, Santa Maria Bay, Cabo Pulmo, etc. Tio also offers snorkeling, ocean kayaks, sailing and waverunners.

#### SOLMAR SUITES

The magnificent splendor of Playa Solmar at Baja's southernmost tip is the setting of the new Solmar Suites Hotel which is within walking distance to town and the Amigos Del Mar dive store. All suites are oceanfront with beach-entry patios or private balconies. Guests will enjoy the many amenities including two super-heated swimming pools with swim-up bars, a 15-person jacuzzi, water sports, horseback riding, the world-famous charter fishing fleet and fine dining.

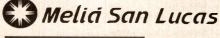
#### SOLMAR V

The 112-foot *Solmar V* is the newest luxury liveaboard operating in the Sea of Cortez. From the *Solmar V* you can dive year-round and explore such dive sites as Gorda Banks, El Bajo, Cabo Pulmo, Las Animas and the Revilla Gigedo Islands—particularly San

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Gabo San Lucas?

besides whalesharks, sea lions, mantas and the incredible sandfalls





WATERSPORTS

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(800)729-7234 ext.2



Think big: The Sea of Cortez is one of the best places to see big marine animals such as hammerhead sharks.

Benedicto and Socorro Islands. You'll dive with giant mantas, whale sharks and schools of hammerheads. The Solmar V has 12 air-conditioned staterooms each with a private bathroom and color television/VCR. Three daily gourmet meals, snacks, afternoon receptions, along with beer, wine and soda are all included in the price of your trip.

#### **AMIGOS DEL MAR**

Amigos Del Mar is a PADI International Dive Center/Resort Facility and SSI Resort Facility offering daily guided natural history scuba and snorkel tours, natural history sunset cruises and, in season, natural history whale watching tours. Amigos Del Mar is the most experienced operator in Los Cabos and has added a new 25-foot, six-pack fast boat for adventure diving to their fleet of four comfortable, custom dive boats, including two large trimarans.

#### **MELIA SAN LUCAS**

This five-star hotel is a vacation paradise offering something for every type and class of diver, surfer, boater, skier, swimmer and fisherman. All rooms have a terrace and most have an ocean view. Other hotel amenities include a seafood and a haute cuisine restaurant, coffee shop, lobby bar and swim-up bar at the pool.

#### **BAJA EXPEDITIONS**

Join Baja Expeditions aboard the 80-foot motor vessel, Don Jose, or the 88-foot schooner, Copper Sky, for a week of exciting live-aboard diving in the Sea of Cortez. Baja Expeditions also offers hotel-based dive packages with daily diving aboard the Rio Rita.

#### LA CONCHA BEACH RESORT

Located just north of the city of La Paz, next to the Governor's Palace, this resort offers a special blend of comfort and excitement. La Concha boasts a complete aquatic Sports Center featuring fishing boats, sailboarding, speed boating, scuba diving and snorkeling, day sailing, sunset cruises and paddleboards.

#### HOTEL PERLA

Hotel Perla is "the place near everything" in La Paz. In addition to its lovely sidewalk cafe and glorious setting, the Perla offers air-conditioned rooms at modest prices, nightly dancing to live music, a central downtown location that makes shopping or strolling the malecon encircling the bay convenient and easy

The following dive travel wholesalers service Cabo/La Paz and supported this special advertising section:

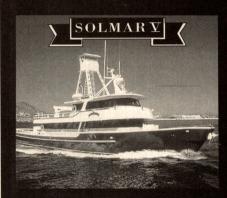
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Encounters like this with giant manta rays are a common occurrence in the Sea of Cortez.

### **BAJA'S BEST LIVE-ABOARD**



o you want more value out of your dollar? Are you tired of traveling halfway around the world to get truly exotic diving?

Look no more! Over the past few years our friends at Amigos del Mar have proved that the consistent quality of diving conditions and the abundance of marine life rightfully labels Cabo San Lucas as a world-class diving destination. Now experience clouds of fish, schooling hammer-head sharks, manta rays and whale sharks from Baja's finest live-aboard. **Diving Provided By** 

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- · Beam 25 feet
- 12 individual air-conditioned staterooms with private shower and head
- All staterooms have TV's and VCR's
- Twin compressors with cascade system for quick refills
- Freshwater makers provide 1,200 gallons per day
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# Romancing the Surf

quid know how to go out with a bang. Rising from the deep by the thousands, they gather for gang spawnings, and like the salmon of the Pacific Northwest, it's the culminating event of their squiggly lives—virtually all of them, male and female,

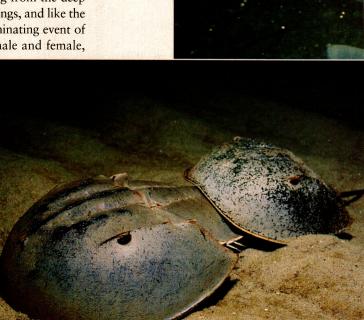
perish in the effort.

They mate day and night, usually in pairs, but sometimes as many as half a dozen animals join in an impromptu orgy, flashing colors ranging from burgundy to opalescent green. The final ocean-bottom scene is straight out of *Caligula*: a seafloor littered with huge mats of white, cigar-shaped egg capsules and the spent bodies of dead and dying squid, beat up and scarred.

While not all marine animals reproduce with as much drama as squid, they all do it one way or another. Sex in the sea can take on many forms, from the simple cloning of anemones to the complex sex changes of wrasses. Some marine animals spawn in swarms of thousands; others carry on one-on-one courtship. Some animals release their gametes into the water in

vast clouds, where fertilization may be a hit-or-miss proposition. Others produce only a few eggs but take elaborate measures to ensure their development. Where eggs are released unattended, a single female may produce thousands in order that one or two may grow to maturity. Where the young are carried internally, as in live-bearing fishes, only a few are required. Some animals spawn only once, then die; others continue sexual activity throughout their lives.

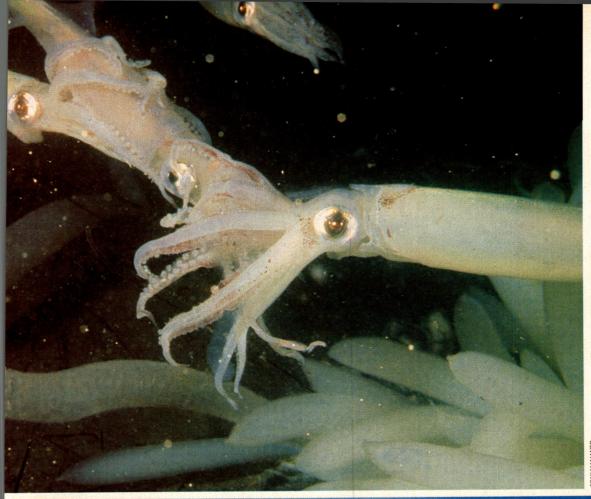
Reproduction—including courtship, mating, incubation of eggs, and birth—can be easy to observe if you know what to look for and recognize what is going on. Underwater photographers Eric Hanauer, Paul Humann and Andy Martinez know what to look for. And their travels around the world have given them the chance to catch a wide range of marine animals in the act.



ABOVE: IN SPRING, HUNDREDS
OF PAIRS OF HORSESHOE CRABS COME
ASHORE ON ATLANTIC AND GULF
BEACHES TO MATE. THE FEMALE DIGS A
HOLE AND LAYS ABOUT 200 BLUISH-GREY
EGGS WHILE THE MUCH SMALLER MALE
SIMULTANEOUSLY FERTILIZES
THE EGGS FROM BEHIND.

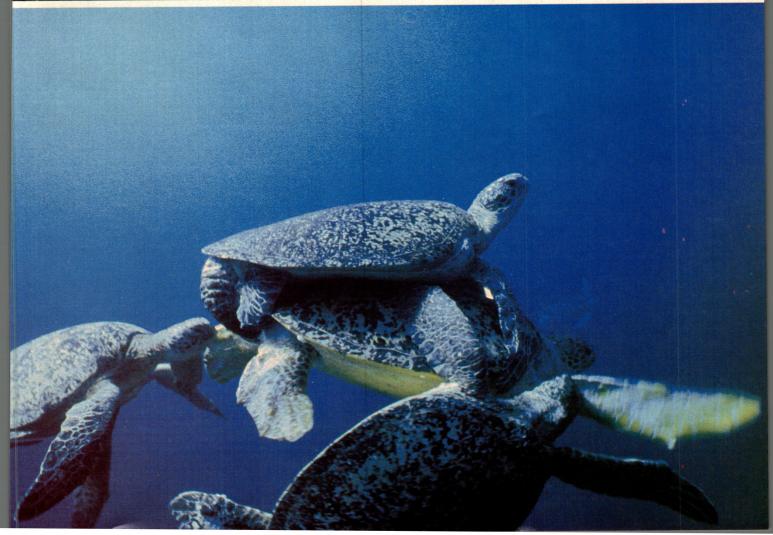
RIGHT: IN THE ORIENT, TURTLE
EGGS ARE PRIZED NOT ONLY FOR THEIR
FLAVOR BUT ALSO FOR THEIR PRESUMED
APHRODISIAC QUALITIES. TURTLE COUPLING OFTEN GOES ON FOR HOURS AND
EGG FANCIERS APPARENTLY HOPE TO
ACQUIRE SIMILAR STAYING POWER.
HERE, A MATING PAIR OF TURTLES
ATTRACTS SINGLE MALES, WHO ARE
ATTEMPTING TO DISLODGE THE ONE
WHO GOT THERE FIRST.

ANDY MARTINEZ



LITTLE DEATH, BIG DEATH: A TRIO OF LUSTY SQUID TAN-GLES TENTACLES IN THE MÉNAGE À TROIS THAT WILL END THEIR LIVES.





#### PORTFOLIO



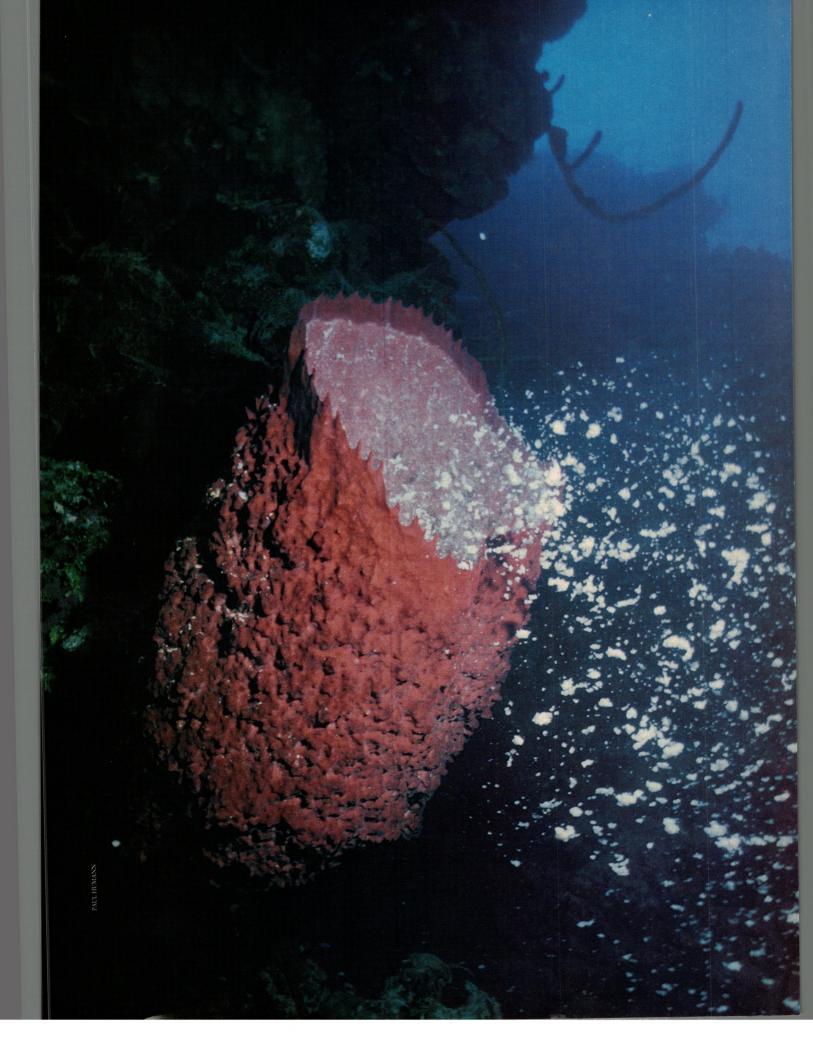
ABOVE: MATING AGGREGATIONS HAVE BEEN DESCRIBED IN SEVERAL SPECIES OF CRABS, BUT HAD NEVER BEFORE BEEN REPORTED (OR PHOTOGRAPHED) IN THE SPIDER CRAB. THIS EVENT TOOK PLACE IN 20 FEET OF MURKY WATER, NEAR THE BREAKWATER OFF REDONDO BEACH, CALIF. HUNDREDS OF FEMALE CRABS WERE STACKED ONE ATOP THE OTHER IN A HUGE MOUND. MALE CRABS PATROLLED THE PERIMETE OF THE MOUND, CHOOSING PARTNERS ON A BASIS KNOWN ONLY TO THEM. THE PAIR WOULD HOOK UP BACK TO BACK BY INTERTWINING THEIR REAR SET OF LEGS AND THE MALE WOULD THEN DRAG THE FEMALE WITH HIM TOWARD THE SECLUSION OF THE BREAKWATER.

RIGHT: NUDIBRANCHS PLAY THE NUMBERS GAME. THEIR EGG MASSES
RESEMBLE TISSUE PAPER ATTACHED TO THE REEF. CLOSER INSPECTION REVEALS THOUSANDS OF TINY EGGS EMBEDDED IN A GELATINOUS
MATRIX. THE ODDS AGAINST ANY INDIVIDUAL EGG BECOMING AN
ADULT NUDIBRANCH ARE ABOUT 100,000 TO ONE.



RIGHT: A MALE GIANT BARREL SPONGE TAKES A SHOT IN THE DARK, DISCHARGING A CLOUD OF SPERM TO MAKE AN IMPROBABLE RENDEZVOUS WITH THE EGGS RELEASED BY THE FEMALE SPONGE. TO INCREASE THE ODDS OF SUCCESSFUL REPRODUCTION, THE SPONGES RELEASE THEIR GAMETES SIMULTANEOUSLY, SYNCHRONIZED BY LUNAR CUES.

FRIC HANAITER







RIGHT: INSTEAD OF COPULATING IN OPEN WATER, RECLUSIVE KELPFISH PREFER THE PROTECTION OF AN ALGAE BED, CHANGING COLORS TO MATCH THEIR SURROUNDINGS.



#### PORTFOLIO



MANY CRUSTACEANS LAY MASSES OF EGGS, BUT INSTEAD OF LEAVING THEM, THE FEMALE CARRIES THEM ON THE UNDERSIDE OF HER BODY AS DEMONSTRATED BY THIS TRANSPARENT SHRIMP.

## SCUBA DIVING

# '94 PHOTO CONTEST

Stock up on film and dust off your favorite lens, it's time again for the Rodale's Scuba Diving underwater photo contest. The weather is warm and last year's winners are enjoying their photo gear and dive vacations. We've got more great prizes on tap for the third annual contest.

#### Send us your best photos in the following categories:

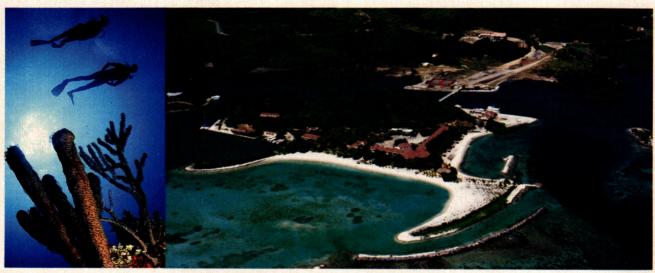
Saltwater Color ● Freshwater Color ● Abstract Color ● Black & White

Macro ● Marine Life ● Diver Portrait ● Wrecks

Mark each photograph with your name, telephone number, the location where the photo was taken and the equipment and film used to take the photo. (Attach slides to 8½" x 11" paper if needed, and—please—write legibly.) All entries must be postmarked no later than Dec. 31, 1994. You may enter as many photographs as you wish and you may submit either prints or slides, but remember, THE ENTRIES CANNOT BE RETURNED. Duplicate slides gleefully accepted. Winners will be showcased in a spring 1995 issue of Rodale's Scuba Diving.

#### **SEND ENTRIES TO:**

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# THE BIG PICTURE

BY RICK SAMMON

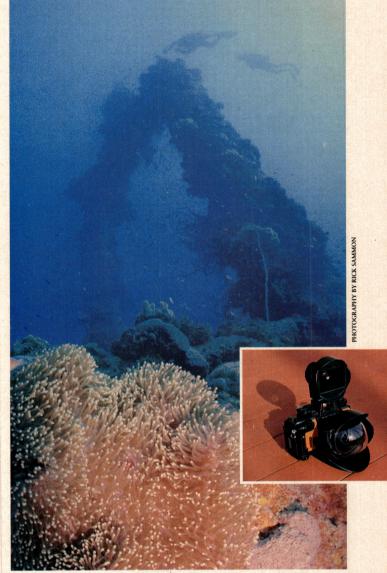
imply put, in underwater photography, the closer you get to your subject the sharper your photos will be. That's because water is about 800 times more dense than air, so it absorbs, bends and scatters the light you need. In addition, countless planktonic animals and plants float in the water like snowflakes in a light breeze, reducing clarity even further. By shooting close, you reduce the amount of water between you and your subject. Less water means sharper photos.

Of course, to get close and still be able to fit in subjects like divers and diver-sized fish, you need a lens that takes in a lot of territory—a wide-angle lens. This is one of the reasons so many professional photographers use Nikonos cameras with either the Sea & Sea 15mm lens or the

Nikonos 15mm. Until now, these 15mms were the widest lenses available for the Nikonos.

That changed this spring when Sea & Sea introduced a new lens for Nikonos, a 12mm full-frame fisheye. At a list price of \$2,250 for the lens and another \$730 for the viewfinder, the 12mm is not cheap. That

A full-frame fisheye for the Nikonos is finally here. We test Sea & Sea's new 12mm lens.







AS A FULL-FRAME FISHEYE, THE SEA & SEA 12MM LENS HAS INCREDIBLE DEPTH OF FIELD; HERE AN ANEMONE ONE FOOT FROM THE FRONT OF THE LENS IS RENDERED AS CRISPLY AS THE DIVERS 40 FEET ABOVE (ABOVE); THE NIKONOS 15MM LENS COVERS 94 DEGREES (FAR LEFT) WHILE THE NEW SEA & SEA 12MM LENS COVERS 167 DEGREES (LEFT).

# FAST FACTS: SEA & SEA 12MM LENS Focal length 12mm Minimum focus 11.8" Coverage (under water) 167° Lens construction 9 elements/6 groups

Coverage (under water) 167°
Lens construction 9 elements/6 groups
Aperture range ff3.5-f122
Body material aluminum
Max. depth 200 feet
Weight (in air) 1.23 lbs.
List price \$2,250 (lens)
\$730 (viewfinder)

compares to \$1,600 plus \$300 for the Nikonos 15mm and finder or \$1,070 for Sea & Sea's 15mm and finder. However, this is the first—and only—primary fisheye lens available for the Nikonos. In the world of high-tech camera accessories, the 12mm is a lot of glass for the buck.

#### TAKING IT ALL IN

What's all that mean? The focal length of the new lens is just three millimeters shorter than the 15mm, but what a difference those three millimeters make. The field of view of a 15mm lens is 94

degrees; the 12mm takes in a whopping 167 degrees. In addition, it can focus on objects less than a foot from the front element of the lens. This means you can get even closer to your subjects than you can with a 15mm without cropping part of them out of the frame.

The full-frame fisheye part is important, too. Photographers coined the term fisheye to describe lenses that come close to taking in a full 180 degrees. Many true fisheye lenses for topside cameras actually make a circular image on the film. A "full-frame" fisheye fills the film frame with image instead of making a circular image.

But the 12mm does more than just let you get in close. Because it's a full-frame fisheye, it bends vertical and horizontal lines (like the masts or decks of a sunken ship) that do not run directly through the center axis of the lens. This distortion—known as "barrel" or "pincushion" distortion—can create dramatic and eye-catching images.

Naturally, we were eager to use this lens and I got the chance to field test it during a trip to photograph the

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f/35mm LIWN (2:1 1:1 1:2)

war wrecks of Truk Lagoon aboard the *Truk Aggressor*. My gear included a Nikonos V, two Sea & Sea YS-300 strobes, Kodak's Ektachrome Underwater film (ISO 50) and Tiffen's Ektachrome Underwater filters.

#### SHOOTING STAR

The field of view of this lens is very impressive. Even while hanging within arm's length, I could get whole gun turrets in my frame. I was able to frame the entire cockpit of a Japanese Zero while no higher than the plane's canopy.

Another benefit of the lens's wide angle of view is tremendous depth of field—the ability to hold sharp focus on subjects both close in and far away in the same frame. At any given aperture, the 12mm lens has a greater depth of field than the 15mm lens; with a little bit of planning, this can make focusing while under water almost unnecessary.

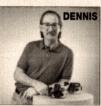
I found another bonus to the extrawide field of view: you can get so close to your subject that, if you have clear water and are working at less than 40 feet, you can get colorful photos without

PKG2B . Nikonos V camera as above plus Helix basicext, tube set CALL\*\*\*

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#### $(1:1, 1:1.8, 1:2.75\Omega)$ 95 00 HUP-123 • Deluxe set w/3 tubes and 4 framers f/35mm UWN $(2:1, 1:1, 1:2, 1:3\Omega)$ 132.00 HUP-125 • Super Master set w/3 tubes and 7 framers (2:1, 1:1, 1:2, 1:3Ω f/35mm UWN; 1:1, 1:1.8, 1:2.75 $\Omega$ f/28mm UWN) Ω An optional camera mount screw is required when using the 1:3 tube with the **HELIX SIGNAL & DIVE LIGHTS** 39.95 HUP-200 • Photo dive light HUP-201 • Photo dive light w/krypton lamp BENTLEY MARINE PRODUCTS BENTLEY MARINE PRODUCTS 19.95 BMV-101 • Bentley Marine housing w/wide glass port, flat por t, 4.2 Ah battery, dual handles for TR-101, 81 LIGHT & MOTION VIDEO HOUSINGS 852-0009 • New! StingRay housing for TR-81.852-0010 • New! StingRay housing for TR-101 1299 00 852-0011 • New! StingRay housing for TR-500 ... 860-0009 • New! StingRay Travel pkg, w/StringRay hsg, for TR-81 SunRay Dual light, extra battery, Pelican 1520 case w/custom die cu foam, 2x arms, spare O-ring sets, & spare 30w lamp 2399.00 860-0010 ◆ New! StingRay Travel pkg. as above but with StringRay hsg. for TR-101 2399 00 860-0011 . New! StingRay Travel pkg. as above but with 2399.00 **LIGHT & MOTION VIDEO LIGHTS** 850-0005 • SeaBlaze Diffuse video light (50w/65 mins.) ... 850-0001 • SeaBlaze Specular video light (50w/65 mins.) 399 00 850-0002 . SeaBlaze Specular EX video light 599.00 **MORRIS AQUA STROBES** 12035 • Morris Aqua F-6TTL for Nikonos III/IV/V CALL 12040 . Morris Aqua F-5TTL with arm, tray, diffuser, remote sensor for Nikonos III/IV/V CALL 12020 . Aqua F-3TTL for Nikonos V 329.00\* 12270 . Morris U/W Slave flash 59.00

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PKG2A • Nikonos V camera (w/battery & spare 0-rings), 35mm f2.5 UWN, Aqua F-III TTL (w/arm, tray, & sync cord), dive light &

equipment case (17.1x12x7.2") w/foam & O-ring

PKG3A • Nikonos V camera (w/battery & spare 0-rings), 35mm 12.5 UWN, Speedlight SB-103 (w/arm, tray sync cord, diffuser, case, & spare 0-rings)	\ 0
equipment case (17.1x12x7.2") w/foam & O-ring	195), &
PKG3B • Nikonos V camera as above plus Helix basic ext. tube set C	
PKG4A Nikonos V camera (w/battery & spare 0-rings), 35mm f2.5	
Aqua F-5TTL [w/arm, tray, TTL sync cord, remote sensor w/slave	
diffuser (15mm) & spare O-rings], dive light, light mount & equi	
case (17.1x12x7.2") w/foam & O-ring	
PKG4B . Nikonos V camera as above plus Helix basic ext. tube setC	
PKG5A . Nikonos V camera (w/battery & spare O-rings), 35mm f2.5	UWN.
Sea & Sea YS-50TTL (w/arm, tray & sync cord), & equipment ca	92
(17.1x12x7.2") W/foam & O-ring	ALL***
PKG5B • Nikonos V camera as above plus Helix basic extension tubo	9
set	ALL***
PKG6A • Nikonos V camera (w/battery & spare O-rings), 35mm f2.5	LIMAN
Morris F-6TTL [w/arm, tray, TTL sync cord, diffuser (15mm) & s	
rings], dive light, light mount & equipment case (17.1x12x7.2")	
& O-ring	/LL T
PKGbB • Nikonos V camera as above plus Helix basic extension tube set. C	ALL***†
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using a flash, especially if you're using Kodak's Ektachrome Underwater (see our field test, February 1994, page 88). Getting closer means more colorful photos because, just as color diminishes as you descend from the surface due to absorption of the longer wavelengths of light (which are toward the red end of the spectrum), the farther you are horizontally from your subject, the less red light will reach the film. Kodak's Ektachrome Underwater compensates for this effect, and in conjunction with the 12mm, gives nice color renditions of close subjects. The benefit here is that natural-light photography is much easier than using strobes and there is less chance your images will be ruined by backscatter from the flash.

When shooting silhouettes with the 12mm, try to fill as much of the frame as you can with your subject. Because the angle of view is so wide, you may inadvertently include a lot of very bright or very dark areas in your frame. Automatic exposure meters, such as that in the Nikonos V, have a hard time correctly exposing silhouettes in the first place. If there is too much dark or light in the frame, you could wind up with a photo that's grossly overexposed or underexposed.

#### **NEWS FLASH**

The Sea & Sea 12mm poses some special challenges for flash photography. There is no single strobe that will completely cover the entire field of view of this lens. So if you want a frame that is evenly lit from edge to edge, you'll need to use two strobes with diffusers, one on each side of the camera about two feet from the lens. You can use a single strobe if you just want to light a portion of the frame, say an anemone at the bottom of a photo.

When shooting with the 12mm at an aperture smaller than f/11, the corners of the frame seem to darken just a bit. This is characteristic of many extreme wide-angle lenses. It's not always a drawback because the slightly darker corners lead your eyes to the central portion of the frame, where, presumably, you want the viewer to look.

#### Two Buts

The lens is clearly a useful tool for both

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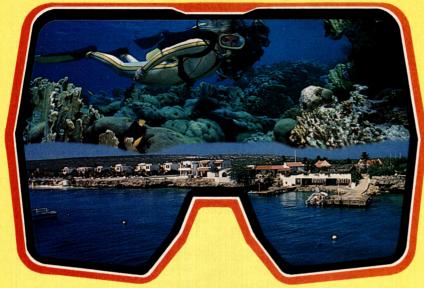


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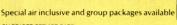


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professionals and enthusiasts, but I found two minor drawbacks.

The controls on Sea & Sea's 15mm and 20mm lenses are fine, but the f-stop and focus shafts on the 12mm are too short. Adjusting these controls with medium-sized hands like mine is difficult because the built-in lens hood comes very close to the controls. If I had been wearing gloves, the adjustments would have been even more time consuming. This is a small point, but maybe Sea & Sea could come up with extensions for the shafts or redesign them.

I'm not sure there's a solution for the second point. Because the 12mm has such a wide angle of view, it requires a very large viewfinder. As a result, the film rewind crank on the Nikonos V comes very close to the finder and my hand hit the viewfinder on each pass. It's a small detail, and you can simply remove the viewfinder when changing film. That's what I did on the *Truk Aggressor*, which has a nice big camera table. Taking off the viewfinder to change film is a little harder if you're in a small boat in a big swell, so keep this in mind.

#### TEST CASE

Any time you get a new piece of photo gear, you should test it in a pool or controlled setting before you take it on a dive trip. This is especially important with the Sea & Sea 12mm. Working with its extreme wide angle of view may require you to change some of your techniques. Your strobes, for example, need to be positioned behind the film plane or they'll show up in your photos.

There are three other suggestions that may help you: First, bracket more than you usually would to ensure good exposure until you get a feel for the lens. Second, use the neoprene lens cover that comes with the 12mm while getting in and out of the water. This will help prevent scratches on the front element of the lens. Third, shoot from a kneeling position with your fins behind you rather than standing up or on one knee. This will keep your fins from showing up in the lower portion of the frame.

Rick Sammon is the photo columnist for the Associated Press and is the former editor of Studio Photography magazine.

#### LIGHTS

(Continued from page 82)

selves by eliminating the need to buy chemical light sticks.

Chemical light sticks are notorious for their undependability, so you have to buy more than you need to allow for malfunctions. They're only good for one night of diving, after which you throw them away, creating more trash.

PLLs, on the other hand, can be used time and again. Turn your PLL on before you start your dive; turn it off when the dive is over. And when the battery finally burns out, simply replace it and you're ready for more night diving.

Many of the larger PLLs can also be used as lights to read gauges, as back-up lights, and some can be converted into tiny dive lights.

#### LET THERE BE LIGHT

ATLANTIC SPORTS The single offering in the Atlantic Sports line is the Northstar NS-4, a small, barrel-grip light with medium intensity and an extremely wide beam for its

#### CARING FOR YOUR LIGHT

Before you dive, be sure to tighten the lens cap, but don't overtighten it. After use, rinse your light in fresh water and let it dry out of direct sunlight. To service the Orings, be sure they are clean, then lightly lube them with silicone grease, not aerosol spray, which can damage the plastic.

Always carry an extra bulb and an extra set of batteries, plus make a note in your dive log as to battery and bulb type for when it comes time to replace them. If your light is a rechargeable, make sure you have a fresh set of batteries and your recharger handy.

Rather than waiting for your batteries to go completely dead, periodically check their condition with a multi-meter or a very simple, inexpensive battery checker. Make sure battery and bulb contacts are secure and not damaged. Battery contacts can be cleaned with a pencil eraser, if needed. When you put in new batteries, instead of just turning the light on and off, leave it on for a bit; this can act as a light test and also helps extend the life of the bulb. When changing the bulb, use a tissue to hold it to protect both your fingers and the bulb.

size. Available in eight colors, the NS-4 features double O-rings and good instructions, and comes complete with batteries, extra bulb and lanyard.

DACOR Dacor's line of dive lights includes the UL750, UL850 and the UL1000. All three lights



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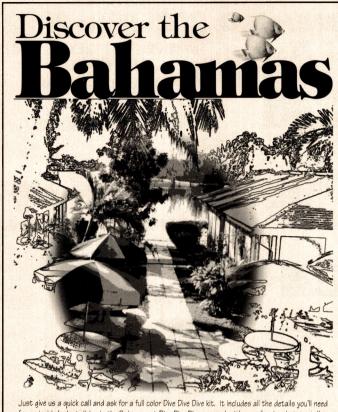
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adjustable handle that enables you to 6000' Wall". switch from a pistol to a lantern grip with just a twist of the handle. **IKELITE** Ikelite offers 11 diving lights and a catalog chock-full of information. We looked at seven of Ikelite's lights, all of which come with good instructions and feature narrow beams of medium to high intensity. With the exception of the Mini-C and the Modular SuperLite, all Ikelite diving lights come with rubber shrouds on the lens caps which protect the lenses and block

side reflections.

The Mini-C is small but offers a light beam of medium intensity, the Mini-C/FL is equipped with a fluorescent tube in its barrel handle. Both come with belt clips.

are large, offer bright, medium-width

beams, and float. The UL750 and the

rechargeable UL850 are lantern-gripped

and feature double O-rings and a special

clamping system that secures the lens

cap to the body. Replacement of batter-

ies and bulbs is self-evident, but requires a screwdriver or other blade tool to open the case. The UL750 and UL850 also

have molded "feet" to keep them from

rolling. Both lights could use better

owner's instructions. The UL1000 is the

more "modern" of Dacor's lights. A bit

more compact, it offers an innovative

The Super-C/HX and the rechargeable Super-C/HR are equipped with belt clips on their barrel-grip handles. The O-rings of both lights are difficult to access and reassemble.

On the large end of Ikelite's line we tested three lights: the barrel-grip Maxi-C/FL with a fluorescent light in its handle; the pistol-grip RCD, which features an innovative flip-lock system for accessing the battery compartment; and the rechargeable Modular Super-Lite, which can be used as either a pistol or a lantern grip. The SuperLite does not come with a charger (increasing the price of the light by about \$40).

OCEANIC Deceanic offers one of the smallest dive lights available: The Mini-Hylite is an inexpensive, lowintensity penlight that stashes in a BC pocket as a limited use day light or as an emergency back-up light. At the other end of the spectrum is the mighty Ocean Pro 101, which boasts the longest burn time of any (Continued on page 116)

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# NITROX NEWS

BY BRET GILLIAM

ust as dive computers did in the 1980s, nitrox—a breathing mixture with more oxygen than ordinary compressed air-has stimulated a lot of controversy in the recreational diving community. It's ironic that nitrox dive computers may help to ensure the widespread acceptance of nitrox in the 1990s as they make multilevel nitrox dives feasible.

Nitrox was developed by Dr. Morgan Wells, diving coordinator of the National Oceanic and Atmospheric Administration (NOAA), as a tool to allow diving scientists to increase their bottom times and decrease the risk of decompression sickness (DCS).

Wells' goals are still the biggest attractions of nitrox. Since nitrox contains less nitrogen than compressed air, the partial pressure of nitrogen is lower for any given depth. Because the partial pressure is lower, less total nitrogen will enter the diver's tissues in a given number of minutes. This allows longer bottom times for divers breathing nitrox than for those breathing air. (However, it also limits the depths of those dives because of the danger of oxygen toxicity. More on this later.)

The PADI Dive Tables for compressed air (which contains 21 percent oxygen and 78 percent nitrogen) give a nodecompression limit of 60

**Proponents** promise more bottom time, less surface interval and lowered risk of DCS. Is nitrox ready for prime time?



THE WEARING OF THE GREEN: TANKS CONTAINING NITROX—EASILY RECOGNIZ-ABLE BY THEIR GREEN AND YELLOW MARKINGS—ARE BECOMING AN INCREASINGLY COMMON SIGHT ON RECREATIONAL DIVE BOATS.

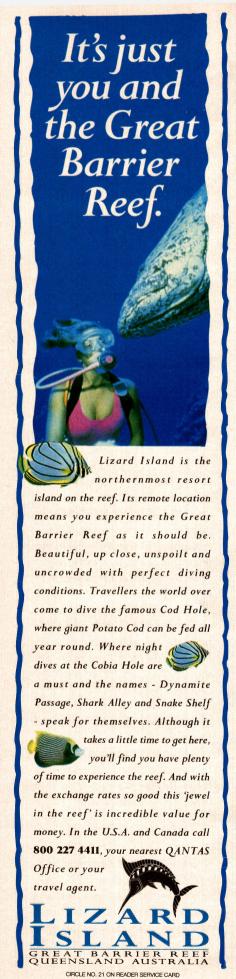
minutes at 60 feet of seawater (FSW). For a nitrox mixture containing 32 percent oxygen and 68 percent nitrogen (which is called NOAA Nitrox I), NOAA recommends a no-decompression limit of 100 minutes, a 66 percent increase in bottom time.

If your goal is increased safety instead of longer dives, using nitrox with the standard air tables dramatically reduces your exposure to nitrogen. According to the NOAA Diving Manual, making a dive to 60 FSW with Nitrox I is the equivalent of diving to 50 FSW using compressed air. Using the nodecompression limit for 60 FSW from the air tables, your bottom time would be 60 minutes, far shorter than the 100-minute nodecompression limit at 50 FSW. Less exposure means less nitrogen. Less nitrogen means lower risk of DCS.

Using nitrox with an intermediate bottom time-such as 80 minutes—allows divers to both stretch their bottom times by a third and build in a 20 percent safety margin.

#### TAKING IT TO THE STREETS

After 20 years of use by NOAA scientists, enriched air (nitrox) was introduced to civilian divers in 1986 by Dick Rutkowski, who worked with Wells at NOAA. Rutkowski founded the Interna-



tional Association of Nitrox and Technical Diving (IANTD) in 1987 and American Nitrox Divers International (ANDI) in 1988. First used primarily by divers in the Southeast, by 1994, nitrox has become the gas of choice for over 10,000 certified nitrox divers nationwide.

Although "nitrox" is the most common term, many experts use the more technically accurate "oxygenenriched air." And don't forget "EAN," acronym for "Enriched Air Nitrox." All refer to the same stuff: air that has been boosted to a higher oxygen content.

How high? The first mixture concocted by Wells was NOAA Nitrox I, 32 percent oxygen/68 percent nitrogen. Later, he introduced a 36 percent oxygen mixture that became NOAA Nitrox II.

Both of Wells' blends are in their third decade of use by scientists, researchers, NASA astronauts in weightlessness training, and various commercial and military divers.

#### THERE IS NO FREE LUNCH

Of course, if you get something-more safety or longer bottom times-you have to give up something. In this case, you give up depth. Although essential for human life, too much oxygen is not a good thing. Breathed at the surface, pure oxygen can make you feel terrific. However, when breathed at depths greater than 19 feet, pure oxygen causes epileptic-like convulsions that can result in loss of consciousness and drowning. Remember Dalton's Law of Partial Pressures from your certification class? Just as with nitrogen, the amount of oxygen that enters your tissues increases with depth. According to the U.S. Navy, the oxygen in regular compressed air can become toxic at 218 feet. Because enriched air contains more oxygen, it becomes toxic at shallower depths. The depth limit for Nitrox I is 132 feet, about the same as the 130-foot depth limit recommended for recreational diving by all the major certification agencies. The depth limit for Nitrox II, however, is just 100 feet. For this reason, Nitrox I is by far the preferred blend.

Worries about the breathability of



compressed air vanished during the 1970s and 1980s, in large part thanks to air quality programs pushed by the major certifying agencies.

Nitrox has brought back some of these concerns. By altering the gas content of air, you also introduce an element of risk in the blending process itself. Is what's in your tank really 32 percent oxygen? Or is it 34 percent? Nitrox tables and computers require that the gas you're breathing be within one percent of its rated content.

As a result, oxygen analyzers that measure O2 content are used in dive stores to ensure the accuracy of a nitrox tank fill. Fortunately, these hand-held units are also available for personal use (about \$500). The gauges are simply held to the tank valve and used like a pressure gauge, allowing you to check the fill yourself before beginning a dive.

These pros and cons have been given full and responsible debate by recognized authorities in hyperbaric medicine, gas blending and diving operations. Standards based on their expert consensus have been adopted by both IANTD and ANDI. As a result, much of the overenthusiastic hype, along with unsubstantiated gloom-anddoom prophecies, have been effectively put to rest. As Michael Menduno, publisher of the technical journal aqua-Corps, reflects, "Though there still appear to be a few rumblings in some quarters, nitrox has become pretty much of a nonissue in U.S. sport diving circles. People from all walks of the industry are seeking out more education. That can only be a good thing."

#### **AGENCY PROGRAMS**

When it comes to nitrox training, the certifying agencies differ markedly. NAUI and NASDS allow their members to issue nitrox certifications if they are also instructors for IANTD or ANDI. NAUI and NASDS also provide insurance coverage for nitrox training. SSI's position is that nitrox training is outside the realm of recreational diving. Says Gary Clark, director of member services at SSI: "We're not against nitrox, it's just not something we do right now. Maybe we will have a program as the popularity increases." Although PADI does not have a nitrox program or plans



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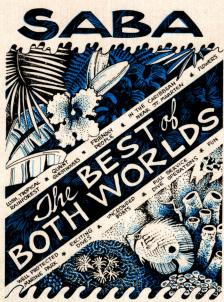
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Ph.011-599-462231, Fx.011-599-462350 CIRCLE NO. 71 ON READER SERVICE CARD for one, it does provide insurance coverage to its instructors for supervising nitrox divers as well as coverage to dive stores that provide nitrox fills or service nitrox equipment.

Both IANTD and ANDI have stepped in to fill the instructional void. "In 1993 our certifications were up 50 percent," says Ed Betts, executive director of ANDI. "We're projecting a 75 percent increase for 1994. Our expansion internationally has given us outlets in Italy, Australia, Israel, Venezuela and England." IANTD's 100 percent growth in 1993 includes new representation in Canada, Japan and Europe. Both agencies offer their own insurance programs for instructors, helping to increase industry acceptance.

#### NOT JUST FOR AIRHEADS

Nitrox has developed its greatest following on the East Coast, where some dive stores now pump more nitrox than standard air. At New York City's Enchanted Diver, owner Bob Raimo has seen surprising interest: "During the summer we average about 700 tank fills a month. Over 60 percent of them are nitrox. Almost all of our customers use nitrox 32 percent with their air computers." Likewise for John Comly of Blue Abyss Dive Center in New Jersey, who reports, "We've seen a major increase in the demand for nitrox in the past two years. Right now it makes up about half of our business. Next year we expect it to be about 75 percent."

But demand is strong on the West Coast as well. In Washington state, Larry Elsevier's Bellingham Dive-N-Travel is one of the largest nitrox filling stations in America: "Marine harvesters went to nitrox for the increased safety and to counteract the wiped out feeling from a day of repetitive dives in cold water. Once you've switched, you'll never go back to air again. We have customers who drive up to 350 miles for nitrox fills."

Nitrox facilities are now in operation in the Caribbean and other destinations. Paul Christman of Dive, Dive, Dive in the Bahamas dedicates an entire boat to nitrox users, who are able to make longer dives in a shorter period of

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time than air divers. Says Christman: "It appeals to divers with families or other topside interests. Before my regular boat gets back, the nitrox divers are showered, changed and at the fourth tee on the golf course."

#### How's THE AIR DOWN THERE?

Certainly, increasing bottom time and decreasing surface interval while maintaining the relative safety of the compressed air tables are important factors in the growing popularity of nitrox.

However, even more divers are embracing nitrox as a safety hedge by using it in conjunction with air tables or conventional dive computers.

Recreational divers who have made the switch to nitrox report sometimes dramatic results. Steve Clemens, a 43-year-old full-time dive instructor in the Northwest, reports, "I switched to nitrox to combat post-dive fatigue. If I use air, I'm usually wasted after a full day's diving. But using nitrox with my air computer has really made a difference. The headaches are gone and my energy level is way up."

#### BUT IS IT REALLY SAFE?

Such claims as Clemens' rankle those who still believe nitrox poses serious risks for recreational divers. So what do the experts say? Most medical and scientific investigators who have studied the recreational use of nitrox agree that when used properly to maximize bottom time or shorten surface intervals, nitrox has about the same potential risk as compressed air.

However, of primary concern to some critics is whether recreational divers have the discipline to use nitrox safely, which means not exceeding the depth limit for a particular mixture and thus avoiding the risk of oxygen toxicity-induced seizures—a very real hazard that would almost certainly be fatal.

Proponents answer that the core of every nitrox training course is centered on this risk and the imperative to observe depth limits. It's exactly because the untrained user could die by going too deep that, proponents argue, we must encourage diver education, not suppress it. They point to IANTD's and ANDI's perfect safety record in training as validation of their position.

Misinformation in the past has sometimes made it difficult for the recreational diver to sort out what are valid safety concerns and what aren't. For example, warnings that nitrox divers could not be treated in standard recompression chambers are incorrect, says Joel Dovenbarger, director of medical services at the Divers Alert Network (DAN). "Our DAN diver insurance policy covers nitrox diving. Nitrox diving within recreational limits does not com-

promise any recompression treatments. We will treat any diver who needs care, regardless of what he was breathing."

#### **NEW DEVELOPMENTS**

The resolution of such issues has encouraged entrepreneurship as well as participation. In April 1994, Cochran Consulting shipped the first units of its programmable nitrox computer, the Nemesis Nitrox, which allows divers to preselect any oxygen



mix from 21 to 50 percent (see "Gear Bag," page 27). Armed with automatic multilevel profiling, some nitrox divers would go into hypothermia before decompression.

One significant obstacle to nitrox—the bulky, heavy storage cylinders of oxygen needed for the blending process—may soon be overcome. Rutkowski and Wells are close to perfecting an air separation device that may eliminate the need for an outside source of oxygen. Capable of producing 40 percent oxygen, these molecular sieve-based units could replace bottled oxygen at retail dive stores and on liveaboards. Rutkowski believes, "Soon you'll be able to produce nitrox with any air compressor and never have to lug another oxygen tank. With one of our units mounted on a bulkhead of the dive boat, you could make all the nitrox for 20 divers doing six dives a day for a week-for free."

Will live-aboard operators soon beat a path to Rutkowski's door? "Safer, but not necessarily longer bottom times are an obvious advantage on any live-aboard," says Peter Hughes, owner of the popular *Wave Dancer* and *Sea Dancer* vessels in the Caribbean and *Sun Dancer* in Palau. The lack of easy access to evacuation of bends victims makes the safety edge of nitrox attractive to owners like Hughes, but with some understandable cautions.

"No matter how many times we recommend or advise divers about depth, many ignore us and continually push the limits well beyond the safe and reasonable. This is my one great fear about the use of nitrox," Hughes adds. "It is my opinion that nitrox on offshore live-aboards offers a plus from a safety point of view as long as divers use it as air and commit to the absolute depth limit of 130 feet. But can you be sure they will do this? I regret to say, I can't."

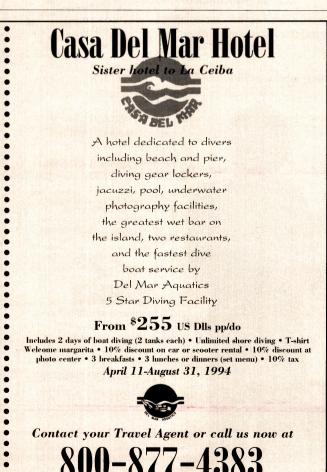
#### AIR TODAY, GONE TOMORROW?

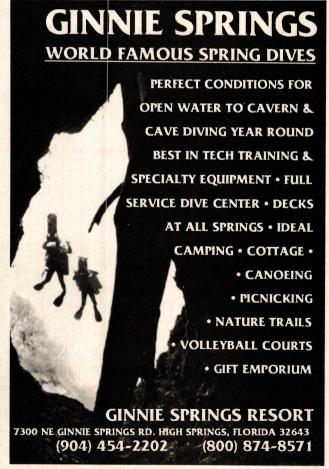
Hughes' concerns are valid. If nitrox is to come of age, all divers must complete proper training and follow the simple rules that apply to nitrox use. As Andrew Mrozinski, hyperbaric technician at St. Mary's Hospital in West Palm Beach, Fla., observes, "We are now going through a period when divers have the tools and knowledge to make their diving safer. Many are using more conservative tables, slowing their ascent rates, adding safety stops and using computers with new caution. Nonetheless, we have treated divers who did everything right and still got bent. Current DAN statistics suggest that half of all diving accidents occur within supposed safe limits.

"It is important to point out that our facility has not treated any nitrox divers who followed the basic rules as outlined in the training programs or manuals," Mrozinski adds. "This suggests a real value to adding nitrox to our list of responsible choices to increasing diving safety and enjoyment."

Bret Gilliam is a member of the board of directors of NAUI and IANTD, and co-author of Mixed Gas Diving.

Next month: Becoming a certified nitrox diver.





(Continued from page 53)

are six major dive areas on Tobago that enjoy the greatest popularity. Three miles off the southwest end of the island is an area called The Shallows, the flat top of a butte that rises from deep water in the channel between Tobago and Trinidad. Strong tidal currents running between the islands dictate drift dives over a series of ledges and crevices. The currents nourish a variety of filter-feeding sponges, invertebrates and soft corals. The nearby deep waters encourage visits from the big guys—mantas, tarpon, dolphins and the occasional shark.

Closer inshore, on the somewhat sheltered Caribbean side of the western end of the island, lies Buccoo Reef (a derivative, it is said, of the French word beaucoup). Typical of the north and west sites, Buccoo Reef has an average depth of about 40 feet. Lacking the tidal surges found in the channel, the water here is calmer. Colorful encrustation covers the rocky reef which is dotted with a variety of corals.

Arnos Vale and Mt. Irvine Wall feature a variety of corals. Not the kind of steep-and-deep declivity you'd find in Cayman, the bottom here is no more than 60 feet. The crevices and ledges are a virtual condo for little guys hiding out from the big guys. More encrustation on the rocks and occasional visits from pelagics give you a chance to experience the entire micro-to-macro scale of oceanic life.

A fourth, much larger area, generically known as Northside, is comprised of a number of locations off the northern end of the island; unfortunately, they often are roiled by steep seas and conflicting currents, and as a result sites such as The Sisters, London Bridge Rock, St. Giles and Marble Islands are frequently not diveable. When they are, they afford a dramatic experience.

The origin of the name The Sisters—a clutch of closely spaced rock pinnacles—is easily seen. Frequently battered by swells, the sides are steep and plummet to more than 130 feet, so if it's possible to get into the water, you can get under the surge. The reward is more of the area's trademark encrusted

rock interspersed with patches of coral. Like pinnacles everywhere, The Sisters are veritable homing beacons for big pelagics.

London Bridge Rock is a monument to the persistence of the northside swells. Above water, the sea has carved this large, natural arch out of solid rock. Below water, the area is honeycombed with swim-throughs and crevices.

By general consent, however, the best diving on Tobago is centered around the small fishing community of Speyside on the northeastern end of the island. Reachable by either boat or car (a serpentine 90-minute drive from the principal city, Scarborough), the village faces due east. The community and its harbor on Tyrrel's Bay are protected by two small islands, Goat and Little Tobago, which lie a mile offshore and directly in the path of the prevailing winds and currents. And it is around the coves and outcrops of these islets on Tobago's easternmost reaches that some of the finest diving in the Caribbean can be found.

Japanese Gardens slopes gently from 40 to 80 feet and features unusual chromatic variety. Indeed, there is something about the fields of gently waving soft corals highlighted by colorful tufts of tube sponge that recalls the simplicity of the courtyard of a Zen monastery.

At Bookends a wave-dashed pair of free-standing rocks resembling small seamounts crown a thriving community of hard and soft corals. In and among the mounding corals weaves a steady procession of angels, clouds of grunts and an occasional turtle. Flying Manta, a canted field of huge boulders and brain corals wedged between the two islets, is a prime feeding ground for Atlantic mantas. Blackjack Hole is a football field-sized reef thronged by sleek black jacks. One of the swiftest marine predators, black jacks are rare in other parts of the Caribbean.

With so much to enjoy both under and above the waterline, Tobago is an unusually rewarding dive destination. In all fairness, however, it's not perfect. It can be argued that a number of factors conspire to suggest that it is best suited for more experienced divers. For example, almost all of the best dive sites are swept by currents which can be considerable, and five- to six-foot seas are not uncommon. Moreover, the variable visibility—which can range from adequate to good, but never comparable to that of, say, Cozumel or the Bahamas—may discourage novice divers expecting more.

Additionally, it should be noted that the prevailing zeitgeist among many of Tobago's dive operators dictates wade-in-from-the-beach boat boarding with few, if any, ladders; mandatory back-roll water entries; and divemasters who, while thoroughly trained and safety-conscious, generally show little interest in the more solicitous forms of divemastering. Under normal circumstances they limit their role to monitoring and marking (with a towed surface buoy) their dive groups. Simply put, most are divemasters, not dive guides. Experienced divers generally applaud this nonintrusive style, but some novices may be discomfited.

As our first live manta dissolved in the middle distance of Blackjack Hole, my fellow divers and I traded the predictable signals, hand and otherwise, of elation. I had, at last, actually seen one on this, my final dive in Tobago. With less than 10 minutes to go in the dive, I turned and began to swim toward our exit point not far ahead. A minute or so later, I had to duck. Another manta, this one with a wingspan of perhaps a dozen feet, was flying straight at me. It passed three feet above me, directly overhead, the broad expanse of its white underbelly momentarily filling my field of vision. And then, an instant later, it too was gone, leaving me gently rocking in its powerful wake.

The moment, of course, passed all too quickly. But it was, in a way, a fitting match, indeed a perfect summation for my experiences in Tobago. It was singular, unexpected and memorable.

Contributing editor David Abrahamson, author of our award-winning monthly "Water Planet" column, writes on natural history and environmental subjects for a number of other national magazines, including The New York Times Magazine, Oceans and Science.

# **CREATURE COMFORT**

BY RICHARD MARTIN



My wife likes the idea of scuba diving, but I can't get her into the ocean because of her fear of possibly dangerous marine creatures. How can she learn to interact with these animals safely?

CHRIS KOURTES
TORONTO, ONTARIO

A: The underwater world is inhabited by an amazing spectrum of weird and wonderful creatures. Most wild animals, however, prefer to keep their distance—and some have potent weapons to help them enforce that preference.

The best and safest way to get close to marine creatures is to simply let them come to you. Large predatory creatures such as sharks may seem more than a little scary, but you don't have much to worry about. Virtually every predator has specific prey preferences and is by nature cautious of unfamiliar creatures. It doesn't make sense for a predator to engage in an unnecessary scuffle with an unknown oppo-

If you want an animal to come to you, act nonthreatening and make yourself

nent.

interesting to it in some way. Many marine creatures are, by nature, curious. Murmur or hum a tune into your regulator—low notes and irregular rhythms work well. Gentle sounds let animals get a feel for you, reduce your strangeness and make you seem less frightening.

Many creatures get spooked by regulator emissions. If you want to visit with a timid animal, use skin diving gear

only and float on the surface while humming through your snorkel. Underwater photographers can wear bright, colorful gloves to attract marine critters. But a warning: Do not swim or gesture with them—they look like tasty morsels to most predators.

Know the habits of the creatures you want to observe. Octopuses, for example, are very shy and sleep all day—the best time to see them is at night. Like many humans, they enjoy take-out food—they forage until they find something tasty, grab it, take it home to dine, and then throw out the container. An octopus's lair is recognizable by broken shells and crab carapaces littering the front door. If you locate a

grotto by day and want a better look at its eight-armed resident, try offering a gift of

leftover fish.

Nothing makes friends with marine creatures like a food handout, but avoid killing one sea creature to feed another. Some

careless divers
smash sea urchins
to present their
innards to octopuses, wolf eels or
morays. The feeding of marine creatures is a touchy
subject—some say it
causes them to depend

on handouts. But most wild animals

are opportunistic by nature—if divers stopped feeding them, they would probably go back to eating what they did before.

There's also been a lot of fuss about feeding preservative-laden junk food to marine creatures. Play it safe and give them leftover fish and seafood.

Hand-feeding can be dangerous if you use your bare hands—the animal may not be able to tell where his dinner ends and you begin. Don't coax a cave-dweller into coming out of its home by offering food and pulling it away. This is

WAYNE VINCENT

how divers have suffered bites from frustrated, shortsighted morays. Establish where the food is going to be and let the animal eat when it's ready.

Marine creatures are generally unaggressive toward divers and getting close to them safely is a matter of experience, planning and common sense.

Q: While wreck diving off North Carolina in July, I encountered a creature 100 feet down that I'd never seen before. At first I thought it was a ray, since it swam by moving its wings in an undulating motion, but it didn't have a tail. It was about a foot-and-ahalf long and had an iridescent blue stripe down its back. It discharged a cloud of black ink after I snapped a photo, so perhaps it's in the squid or octopus family. Help me identify it.

JOHN D. MACLARY PALMYRA, PA

A: Your mystery critter is the black sea hare (Aplysia morio). Speculating the creature belongs to the squid or octopus family's a good guess: sea hares are mollusks, the phylum including soft-bodied creatures cephalopods, gastropods, bivalves, chitons and certain politicians. To be more precise, sea hares are opisthobranch gastropods—snails whose shells are internal, often reduced or absent-and belong to the family Aplysiidae. Sea hares are named for their rabbit ear-like rhinophones paired chemical sensors which protrude from their heads. Sea hares are sometimes subjects of numerous biology experiments; they're taught to run mazes so nervous system changes can be studied, and help unlock clues to osmoregulation—a sea hare placed in fresh water will swell noticeably until it can pump out the excess water.

The black sea hare is among the largest of opisthobranchs, growing to more than 15 inches and weighing nearly five pounds. The species is typically dark in color—chestnut brown or dirty bronze. The body is marked with golden-brown flecks and streaks, which would appear iridescent blue at the depth you reported. The purplish-black ink which tipped you off about the creature's relation to cephalopods

is a defensive mechanism similar to that of octopuses and squids. The black sea hare feeds primarily on green algae and, like other sea hares, appears to enjoy a relatively predatorfree life. The slimy texture of sea hares probably makes them distasteful—the genus name *Aplysia* comes from the Greek meaning "unwashed" or "filthy."

While my ego is relieved that I could identify your mystery critter, I

must admit I learned two new things from your field report. I'd not heard of anyone documenting a black sea hare outside the Florida-Caribbean region. Also, I did not know any sea hare would swim so deep—most sea hares inhabit the intertidal or shallow subtidal zone. Job well done.

Marine biologist Richard Martin ponders all creatures weird and wonderful in Vancouver, British Columbia.



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#### **BAYISLANDS**

(Continued from page 40)

tunicates hung like Christmas ornaments on virtually every piece of sponge, sometimes mixed together in a riot of colors. We swam through an orgy: horny blue chromis thick as flies were riding each other in wild abandon.

One of the lures of these open ocean structures is the large schools of fish. On this dive, a polarized school of Southern sennet was being herded about by a gang of horse-eye jacks, acting cool as they edged closer then flashed in for a mouthful. Seamounts don't support many hard corals, but statues of sea plumes and sea rods provided plenty of hidey-holes for the Atlantic octopus and green moray we saw.

Our afternoon dives took us to the Great Wall, where armies of parrotfish were clashing over territory and two coneys held a lip-lock in a crevasse on

a sheer wall draped in soft corals and visited by a loggerhead turtle. Black Hills was another tunicate-infested, open-ocean pinnacle. We dropped down to 70 feet and spiraled our way up to its tip at 30 feet, swimming through the ever-randy chromis, more schools of sennets, goatfish and black durgon—with the whole thing watched over by a five-foot barracuda that followed us the entire dive.

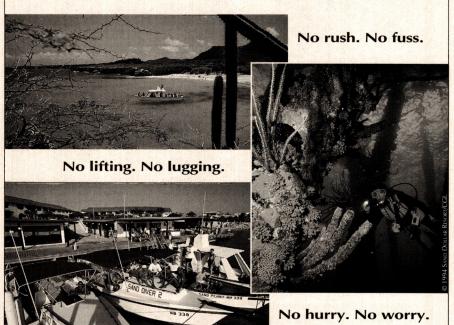
With some of the most impressive pelagic action this side of the Sea of Cortez, including mantas and marlin, Utila has got to be one of the Caribbean's best-kept secrets. Its future as a dive destination bears watching: the natives have a curious attitude toward their underwater treasures. The owner of the island's largest store still tosses all his trash out his back door into the sea. A recent proposal by the local chapter of BICA (Bay Islands Conservation Association) regarding trash collection was voted down. One senses a fierce independence in these descendants of buccaneers, who are not at all sure they wish to make a living being servile to the well-heeled. Their rebelliousness fits perfectly with this retro-'60s enclave.

#### Guanaja: Columbus Slept Here

I glide through time like a ghost, dive kayaking down the same river Columbus paddled on July 30, 1502, the day he made landfall on Guanaja—most seaward and most mountainous of the Bay Islands. I see the same steep folds of green he did, hear the same whistles of parrots chasing one another. Most of all I sense, as he must have, the same hope implicit in an island wilderness. After a week in the Bay Islands, one is tempted to commit religion: if our species finds salvation it will be in learning to preserve the beating heart of such nature.

One of Guanaja's treasures that Columbus did not see or steal—as he is said to have done to the first Indian canoe he came across that day in 1502—lies below the surface, where the island's wilderness becomes even more feral at sites like Devil's Cauldron. The longish boat ride is definitely worth it during the full moons of January and February, when groupers of every stripe convene here for a celebration of fertili-

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ty that has drawn research teams from the National Geographic Society. It's an advanced dive, beginning at 70 feet with ravines down to 140 and lots of current, but utterly fascinating.

Closer to shore, Guanaja is surrounded by a shallow reef band that gives way to an outer reef lined by some spectacular drop-offs and walls twisted into intricate patterns by volcanic action and the wash of time. On the island's north side, perched on the outer wall, is Pinnacle—a spire of coral that could be renamed "Black Forest" for the great stands of black coral that are only memories in places like Cozumel. Down here you'll think you're in the middle of a Christmas tree lot. The stands of feather black coral are dense and pine green, like firs on a mountainside. But this spire is also forested by a thickly branched colony of gray sea fan black coral, the delicate tines of hair net black coral, scraggly black coral with its rows of clear baubles, and strands of wire coral curling into the abyss.

Jim's Silver Lode on the southwest wall is one of those planned marine encounters that, thankfully, sometimes get out of control. The usual drill is to drop down the mooring line and tour the steep wall that falls to primordial depths before slicing through one of Guanaja's signature cleft canyons—a narrow fissure in the wall with a ceiling formed by coral. At this spot, the swimthroughs become a convertible ride in a rainstorm of silversides that flood the tunnels, sometimes so thick you can't see the diver in front of you. The exit is into a sand arena filled with hungry and pettable groupers. They await divemasters with goodies, as do the green morays who love to wrap their velvet skin around you like a boa constrictor, an unnerving but sensual experience.

My dive with a group from Ohio began normally until we saw a nurse shark, reversed direction and began a stampede to surround and photograph the escapee from the Paleozoic. While the divemasters looked for us, we created our own profile, finding stingrays, twisted tufts of lavender and yellow wire coral on the wall, and a four-foot cero—a barracuda look-alike from the mackerel family.

Although wall diving in the Bay

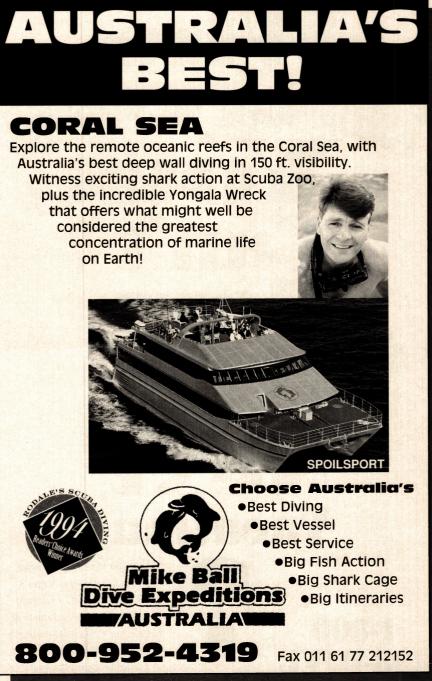
Islands is on a smaller scale than among the massive monoliths of Cayman and Cozumel, the walls here seem to offer more species and denser growth. Marta's Wall provides an excellent example of Guanaja's lush, southside mini-walls, covered with a startling variety of corals and sponges that you rarely see growing together. In contrast, on the island's north wall is a site like Black Rocks, a maze-like series of lava tunnels, caverns and cliffs that are large-

ly barren of coral and sponges, but home to cave-loving types like glassy sweepers, squirrelfish and lobster.

Guanaja's year: definitely 1950. Beneath a placid surface the engine of change is revving up. The current debate is over whether to build the island's first road.

#### Cochino Grande: Let's Get Small

Somewhere between Guanaja and this



archipelago of 13 cays called Cayos Cochinos. (Hog Islands), I got lost in the South Pacific, or at least it seemed that way: isolated atolls of silky sand and palm trees set amid a turquoise brilliance, a rhapsody of blues that could inspire even God.

Maybe it was the 20-minute flight in a four-seater Cessna converted for bush landings on Cochino Pequeño's grassy, bumpy 800-foot strip perched at the ocean's edge, where pigs and chickens conduct their own version of runway traffic control. I stepped off the wing strut onto the grass and was ambushed by the absolute quiet and serious sense of away-from-it-all that these idyllic islands provide.

No wonder. Most of them are privately owned and remain pristine, inhabited not at all or by a caretaker and family. The five-minute skiff ride from Cochino Pequeño across the bay to the sun-dazzled green hills of Cochino

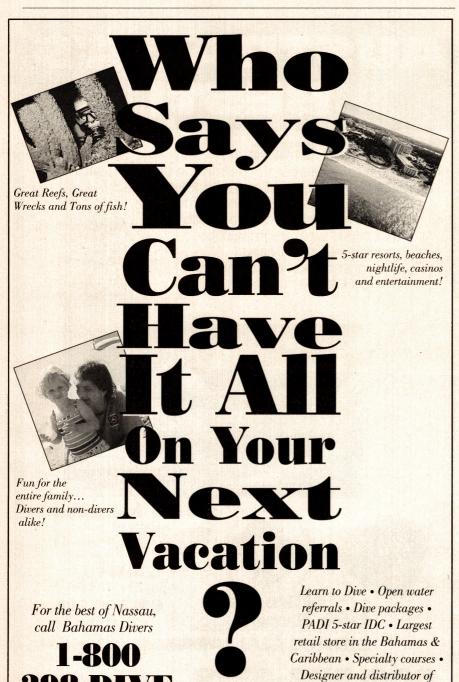
Grande was like sailing through a coconut-scented dream, where time delaminates and worldly woes are sunbleached to oblivion.

The unreality continues beneath the water. The vis is low: the area's shallow waters, freshwater runoff from the mainland only 11 miles away, and a system of underwater artesian springs cloud the water down to the 50- and 80-foot range. But the payoff is a rich nutrient soup that made it possible for divemaster Don Higbie to point out unique, often unidentified life forms on each dive. At times I encountered so many strange species that I felt like I was on another planet.

Just a few kicks down from Plantation Beach Resort—the only dive digs in all the Cochinos—is a shallow fringing reef called Bunker Bay that provides an excellent example of why you must bring the close-up kit and ID books to this macro paradise. Of course there were many types of anemones, including three different giant anemones. One had the typical purple tips, another green, another white. The numerous corkscrew anemones hosted their resident red snapping shrimp and Pederson's cleaner shrimp. A knobby anemone retracted at the speed of light with one blink of my strobe. And a small Florida corallimorph displayed its neon chartreuse, lemon and orange bulbs. Then Don pointed out one species that sat in a narrow fissure like a hidden anemone, yet the tips on its pseudotentacles were bulbous with blue and gray stripes. Name? No idea.

The crustaceans offered another surprise. Swimming over a sandy area, we noticed how cloudy-white the water suddenly turned. Below us was a scene straight from the industrial heartland: hundreds of sandy chimneys were pumping streams of viscous white fluid straight up into the water column. Don dug his hands beneath one sandy factory and brought up a red heart urchin. We had stumbled upon a mass spawning in the middle of the afternoon. We looked at each other and laughed; by this time we were both covered with urchin seminal fluid.

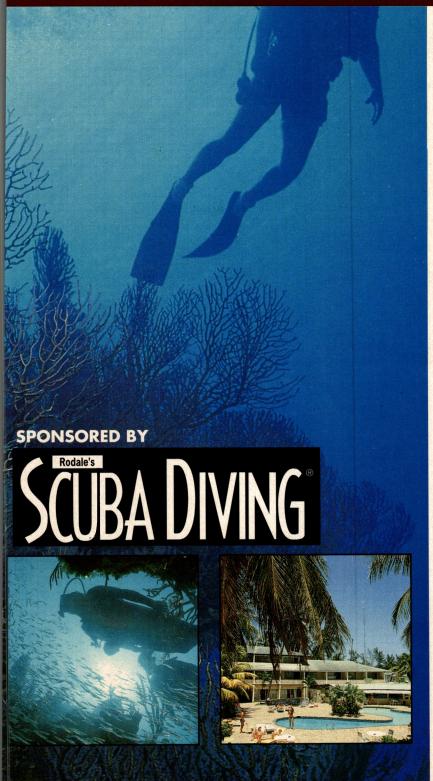
More strangeness: some kind of electric ray, but shaped like a guitarfish



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with three fins on the rear of its sharklike body that can deliver enough voltage to recharge your strobe. Not the lesser electric ray, not the Atlantic torpedo, this one lay completely buried in the sand, which vaguely outlined its shape. Its two air holes were the final giveaway. Don nudged it several times with his fin before it flew up and turned aggressively to face him, daring him to do it again. The large-eye toadfish we found, a species known only on the Caribbean coast of Central America, wasn't taking any guff either. Back in the sand, a sailfin blenny had lost its hole and was making a rare extended appearance. Normally it comes out only for a few seconds, flaps its fin and darts back in.

Considering the amount of macro life in the daytime, I expected night dives to be especially productive. I was treated to an experience equal to what many consider the world's best night

dive-Bonaire's Town Pier. Cochino Grande's counterpart is called Pelikan Wall, a series of three sites along a wall that drops sheerly from the reef crest at 10 feet down to 130 feet.

The basket stars unfurled and unfurled, reaching waterbed-sized proportions. Crawling, scuttling and hiding among them and the sea fans was an army of crustaceans and mollusks: cryptic teardrop crabs camouflaged in sponge red and lavender; a tasseled nudibranch feeding on hydroids; a fringe-back nudibranch, able to ingest and use the stingers of its jellyfish prey; a four-inch measled cowrie creeping by on fleshy spikes. Of course there were spotted spiny lobster, two channel clinging crabs and a batwing coral crab in the shallows. And enough shrimp to open a fast-food chain: the glowing eyes of red night shrimp, banded coral and dark mantis shrimp.

And what's a night dive without a Caribbean reef octopus flashing green and white to show its irritation? Or a rare sharptail eel that lets you pet it? And don't forget the spotted eagle ray that swam unconcerned into our lights and passed within a few feet while our jaws flopped and regulators fell. Bring the largest, brightest light you can: this wall explodes with hallucinogenic colors. It's like sticking your head in a kaleidoscope and giving it a twist.

Other don't-miss Cayos Cochinos dives: Roatan Banks, a quarter-mile of seamounts in the open ocean that plays host to mobs and gobs of schooling fish. Charlotte's Choice, one of Cochinos's unique atolls formed by a sunken island and featuring a school of glasseye snappers that turn bright red as you approach but do not move until you touch them. Quillfin blennies, weird anemones and fingerprint cyphomas guaranteed. The Stadium, a sand depression surrounded by coral heads and caverns filled with silversides and glassy sweepers. Plane Wreck, a Cessna 302 whose propellers and tail section are covered with tunicates in colors and varieties you won't believe. Then, again, maybe you will. After all, you're in the Bay Islands.

David Taylor is Managing Editor of Rodale's Scuba Diving.

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## CHAMBER DONATION PROGRAMS: SHOULD YOU OR SHOULDN'T YOU?

f you've recently been to places like Cozumel, the Bay Islands or Belize, you've probably been asked to pay a few bucks to support the local recompression chamber.

Did you? Should you?

When asked to shell out even more money than they already have, many divers complain, "But I already have DAN's accident insurance. Why do I have to pay again?" There are three good reasons why divers should participate in these programs to support local chambers.

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#### EARLY INTERVENTION

Dive accident insurance covers the chamber's cost of treating individual cases of decompression illness. However, for a chamber to stay operational and properly staffed year-round, additional funding is required. Without that funding, some chambers could not remain open. What then?



Many Caribbean chambers rely on diver donations, DAN's new Caribbean Chamber Assistance Program and volunteers like Cliff Newell (above), director of NOAA's Diving Center in Seattle and a certified hyperbaric technician, seen here completing maintenance on Roatan's chamber—the only one in Honduras.

JUNE · 113

"All the insurance in the world won't do you any good if you have to wait on a dock for evacuation," says Cliff Newell, director of NOAA's Diving Center in Seattle and a certified hyperbaric technician who volunteers his time to repair and maintain Caribbean facilities. "You and your bubbles need to be in a chamber—ASAP."

Early diagnosis and treatment are

the keys to dealing successfully with DCS symptoms. Rehydration, breathing oxygen and, if needed, a chamber ride are essential to reduce bubbles and the damage they cause. As bubbles move through the circulatory system, they not



only harm delicate blood vessels, they can also trigger the body's immune system, which sends platelets to attack. Fibrogen platelets are also sent to help form clots wherever the bubbles have caused bleeding.

As the platelets aggregate around a

bubble and increase its size, a snowballing effect can occur: As nitrogen bubbles grow, they attract more and more platelets that begin to constrict blood vessels. This process causes protein to be released, causing thickening or sludging of the blood and a subsequent decrease in blood volume. Most importantly, the longer treatment is delayed, the more sludge-like blood can turn, becoming increasingly unable to deliver adequate oxygen to starving tissues, even bones.

That's not all. Bubbles can also form in solid tissues, creating air pockets that compress the tissue surrounding it. The longer the bubbles are allowed to remain in the tissue, the more likely scarring will take place, possibly resulting in permanent damage since scar tissue is difficult or impossible to heal.

Sometimes emergency evacuation to the nearest hyperbaric facility can take up to 24 hours—plenty of time for the gunk to form in your blood and bubbles to damage tissue.

#### HERE TODAY, BUT TOMORROW?

Many of the Caribbean's life- and, limb-saving facilities were founded by volunteers and still rely on donations of time, money and expertise from people like Newell to keep their chambers operational for when you need them.

The facilities receive contributions from divers in two ways: directly from the per-day or per-dive donation you are asked to give when diving in the area; and indirectly from diver

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memberships in DAN, whose new Caribbean Chamber Assistance Program provides financial gifts and sponsors free educational programs for chamber personnel throughout the Caribbean Basin. Since its inception, DAN's innovative program has paid nearly \$7,000 for maintenance and repair, continuing medical education and equipment to Caribbean chambers.

An example: Since it became operational in 1989, the Roatan facilitybegun by Episcopal missionaries from Montana and aided by donations of equipment and land from Anthony's Key Resort—has treated 444 divers. In 1993. it received \$2,000 from DAN as well as donations from divers visiting throughout the Bay Islands, yet still relied on gifts of materials, electricity and high-pressure air in order to remain operational. Despite its financial struggles, the Roatan facility treated 117 divers last year-93 commercial divers and 24 vacationers. What would these injured divers have done without the Roatan facility—the only multi-

Divers Alert Network (DAN) is an international tax-exempt nonprofit membersupported diving safety organization based at Duke University Medical Center in Durham, N.C. Since 1980, DAN's primary mission has been to help make diving safe for recreational scuba divers. It accomplishes this goal by providing medical consultations for injured divers, by collecting and analyzing diving accident and fatality information, by promoting educational programs, and by offering diving accident insurance and worldwide medical evacuation coverage. DAN is supported in these endeavors by a network of diving medical experts, hyperbaric facilities, instructors, stores, training agencies, clubs and manufacturers.



place, multi-lock, six-atmosphere chamber in Honduras? They would've sat and listened to the sludge-clock tick.

#### IT COULD BE YOU

Don't kid yourself. The possibility of a DCS hit is something every diver must consider and be prepared for. Current DAN statistics suggest that nearly half of all accidents take place within supposed safe limits. You can get bent even when

you do everything right. And if it is your day to take a hit, you now know a few of the reasons why you want to be as close to an operational, well-staffed hyperbaric facility as you can. If self-interest isn't motivation enough for you to participate in these diver donation programs, then consider the loved one you may be traveling and diving with. Suddenly, those few bucks can seem a pretty sound investment in a sludgeless future.





#### LIGHTS

(Continued from page 98)

rechargeable light tested. The battery in this bright-beam, lantern-grip light can be charged without removing it from the housing, making this the most convenient rechargeable tested. The handle of the Pro 101 is removable and reversible. The Pro 101 is available as a nonrechargeable and has the option of a Hi/Lo bulb.

Pelican's eight submersible lights, many of which are designed for topside use in dangerous, hazardous and explosive environments.

On the smaller end of the line are the Super MityLite, the Stealth Lite and the Super Sabre. All are a whole category brighter than their size would indicate. The Super MityLite and Super Sabre come with a belt clip. A belt-mounted carrying pouch is also available. Pelican's three large lights are the pistol-grip BriteLite, the Dual Six and the King Pelican. All have shock protection and ballast systems, dual filament bulbs, double O-ring seals and a selection of reflectors to alter beam width. All scored on the high end of their cate-

#### PUTTING OUT THE LIGHT

If your light will be stored for a short time, lock the switch in the "off" position. If there is no such lock, tape the switch in the "off" position so it won't accidentally switch on and drain your batteries. Make sure that your light is well padded when inside your gear bag.

If you are not going to be using the light for a long time, remove the batteries, put them in the refrigerator and leave the O-rings relaxed (unstressed), if this is practical. If your light is a rechargeable, follow the manufacturers' instructions as to how often they should be recharged.

Before your next dive, take your light out of storage and test it in plenty of time to get new batteries or replacement parts if needed.

gories for burn times. The Dual Six has

two completely separate and indepen-





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PADI 5-Star Facility

## Spring and Summer Special

5 Days of Diving 5 Nights Hotel

\$54.00\* plus tax

\*per day

\*per person, dbl. occupancy \*includes tanks, weights, and air fills

#### Learn to Dive 4 Day PADI Class

4 Day PADI Openwater Class 5 Nights stay at Plantation Yacht Harbor Resort

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veights, and air fills \*per person, dbl. occupancy \*includes all gear, fees, instruction, manuals \*Prices good Sunday thru Thursday please call for weekend rates.

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#### YOU DON'T HAVE TO DREAM ABOUT DIVING IN PALAU

This is your dive trip of a life time. You work hard for your money, so why take chances. Dive with Palau's formost dive operation. Our friendly, experienced guides are the best in the business and our fleet of 26' dive boats will speed you to the best dive sites in the world! **Fish 'N Fins** and the **Marina Hotel** are made for divers and offers the best value in Palau!

So what are you waiting for?

### Dive package special! \$142 pp dbl occ/night.

Includes: 2 tank dives, room & tax, airport transfers, breakfast, lunch

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Fish 'N Fins- Palau Micronesia

Make your reservations now, call direct at 011-680-488-2637 or fax 011-680-488-1725!
P.O. Box 142, Koror, Palau 96940

dent circuits with two sets of batteries for a total burn time approaching 24 hours. The King Pelican and Dual Six have removable handles which give you a choice of three different positions.

PRINCETON TEC > Six of Princeton Tec > Con Tec's 11 models were included.

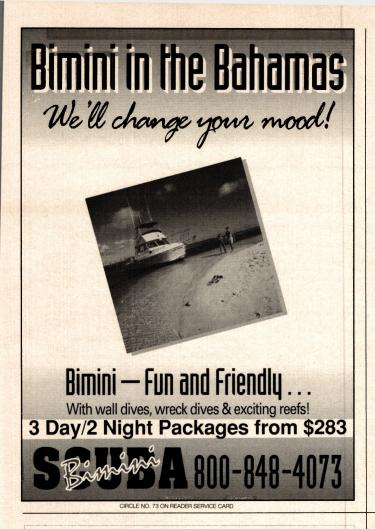
PRINCETON TEC > Six of Princeton Tec's 11 models were included in our evaluations. Princeton Tec lights offer a variety of options, including bulb types, red lens caps and reflectors for creating narrow or wide beams.

The Tec 40 is the smallest dive light in Princeton Tec's line. It features a medium-width, high-intensity beam and can also be used as a PLL by attaching optional lens cones.

The Tec 400 and Tec 600 are powerful narrow-beamed lights that are available with optional magnetic switches. As a group, the Tec 40, Tec 400 and Tec 600, while small- to medium-sized lights offer beams as bright as the big lights, although not as wide.

Among Princeton Tec's large lights are the Tec 4000 and Tec 8000. Both lights have removable handles that convert to either pistol or lantern grips. Although the lights tested were powered by standard "D" cell batteries, both are available in rechargeable versions, neither of which are intended for above-water use.

CIRCLE NO. 47 ON READER SERVICE CARD



THE REAL FLORIDA



Dive Looe Key. Fish the blue water and backcountry. Camp. Stroll The Keys' finest beach at Bahia Honda. It's all real, all natural, but you don't have to spend it all to enjoy it all. Call your travel agent or

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Looe Key named the #1 Favorite Reef Dive in the U.S. in Rodale's Scuba Diving 1993 Reader's Choice Awards BIG PINE KEYS

AND FLORIDAYS LOWER KEYS

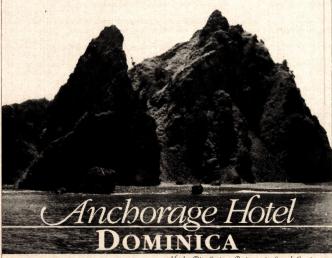
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You can dive all day, and never drop below sea level...
Or do a *Champagne* dive to 30' with some hot blooded locals...
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Where *bumans* and *sperm whales* share the same *family-values*.

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A sunken airplane

La Ceiba s very own reef

Air Conditioning and T.V.

Meeting room and tennis courts

Jacuzzi and sauna

From \$268 US DIIs pp/do

Includes: 2 days of boat diving (2 tanks each) • Unlimited shore diving • T-shirt • 10% discount on car or scooter rental • 10% discount at photo center ¥ Welcome margarita • tennis court, gym & sauna • 3 breakfasts • 1 lunch or dinner (set menu) • 10% tax

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Simply tear out the reply card, circle the numbers preceding the names of the companies which interest you, fill out your name and address, and drop it in the mailbox. (We've paid the postage!) You'll soon be receiving information which will help make your diving more enjoyable!

#### LIMITED TIME OFFER\*

DAVE EDVICATION & INCIDICATION	landscaped with natural flora, 70 beachfront rooms, fully air-conditioned, superb diving, off-shore diving, at
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5605.  3. PDIC International is recognized world-wide for quality instructor training. PDIC has 30 years	individual needs in one of the underwater wonders of the world.  See ad pg
experience in dive instruction, development, and teaching. Send for more information.  See ad pg 112  DIVE EQUIPMENT	48. GINNIE SPRINGS DIVE CENTER Nine crystal dear springs. Basic thru cavern/cave certific Full service dive shop. Camping. Send for information packet.  See ad pg 1
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unhumed, relaxed atmosphere. 1-800-848-4073 74. SEA CLYPSE DIVERS - Key West Dive Hotel Packages, Nitrox & Adv. Deep Air, 6 Divers
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80. SOUTH PACIFIC SCUBA Full color brochure describing daily boat dives, certification classes and
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Australia	-1	2	3	4	5	6
Bahamas	1	2	3	4	5	6
Bay Islands	1	2	3	4	5	6
Bonaire	1	2	3	4	5	6
British Virgin Islands	1	2	3	4	- 5	6
British West Indies/Other	1	2	3	4	5	6
California	1	2	3	4	5	6
California Channel Islands	1	2	3	4	5	6
Cayman Islands	1	- 2	3	4	- 5	6
Continental U.S.	1	2	3	4	5	6
Cozumel	1	2	3	4	5	6
Fiji	1	2	3	4	5	6
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Florida Springs	1	2	3	4	5	6
Florida/Southeast Coast	1	2	3	4	- 5	6
Florida/Other	1	2	3	4	5	6
French West Indies	1	2	3	4	- 5	6
Hawaii	1	2	3	4	5	6
Mexico/West Coast	1	2	3	4	5	6
Micronesia	1	2	3	4	5	6
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Please circle appropriate responses	Never Visited	Visited more than 24 months ago	Visited 12-24 months ago	Visited more than 24 months ago	Visited in the last 12 months	Plan to visit more than 12 months from now
Australia	1	2	3	4	- 5	6
Bahamas	1	2	3	4	5	6
Bay Islands	1	2	3	4	5	6
Bonaire	1	2	3	4	5	6
British Virgin Islands	1	2	3	4	- 5	6
British West Indies/Other	1	2	3	4	- 5	6
California	-1	2 -	3	4	5	6
California Channel Islands	1	2	3	4	5	6
Cayman Islands	1	2	3	4	- 5	6
Continental U.S.	1	2	3	4	5	6
Cozumel	1	2	3	4	5	6
Fiji	1	2	3	4	5	6
Florida Keys	1	2	3	- 4	5	6
Florida Springs	1	2	3	4	5	6
Florida/Southeast Coast	1	2	3	4	5	6
Florida/Other	1	2	3	4	5	6
French West Indies	1	2	3	4	5	6
Hawaii	1	2	3	4	- 5	6
Mexico/West Coast	1	2	3	4	5	- 6
Micronesia	- 1	2	3	4	5	6
Puerto Rico	1	2	3	4	- 5	6
South Pacific	1	2	3	4	5	6
Turks & Caicos	- 1	2	3	4	5	6
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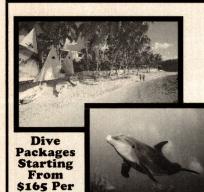
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Princeton Tec also offers a personal locator light called the Aqua Flare. This PLL, which can also be used as a backup light by removing the cone (this can be done under water), comes with a neon yellow cone and four other colors to choose from. The cone is made of glow-in-the-dark material so it will continue to glow if the light fails.

SKYLITE ► Recently imported from Japan, Skylite's line of barrel-grip diving lights seems better suited for general outdoor recreational use than scuba diving. Of the four lights tested, one—the SL350—has a depth rating of only 98 feet. The other three—the SL1401, SL3401 and SL3404—are rated for 164 feet. With the exception of the SL1401, Skylite diving lights have very short burn times and are buoyant to the point of distraction. These lights have a oneyear warranty; batteries and extra bulbs must be purchased separately. Only the SL3404, a small light with medium beam intensity, comes with a lanyard; the others have what appear to be shoulder straps which are of no practical use to scuba divers. The SL350, which is equipped with a fluorescent tube in its barrel handle, and the SL1401 are sealed with both an Oring and gasket.

TEKTITE ► Tektite offers eight models in its line, four of which are barrel-grip diving lights, and four of which are personal locator lights. All Tektite diving lights offer wide beams of low to medium intensity. With the exception of the Torch 4C, all Tektite lights have double O-ring seals. Again with the exception of the Torch 4C, which is designed to take a lanyard, all Tektite dive lights and PLLs have molded "wrist strap guides" for attaching the lights to you or your equipment.

Tektite has the largest selection of personal locator lights in the diving industry. The Mark III and Mark Lite are standard-type PLLs. The Mark Lite Strobe is a high-intensity blinking strobe, and the Mark Lite Firefly is a red LED flasher with a very long burn time.

Tektite also offers a variety of light and PLL accessories, including different bulbs, red lenses, different-colored glow heads, lanyards, straps and belt

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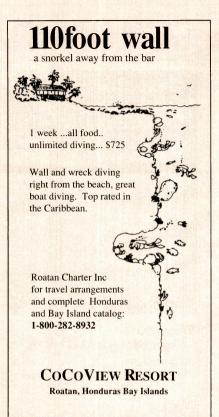
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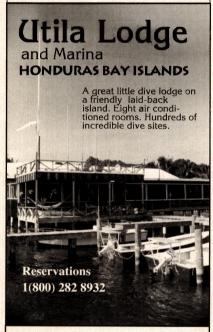


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TUSA Tusa offers only one underwater light, but it's a good one. The Hyperform TUL 1000 is a small light with a narrow, high-intensity beam. The light comes with clear and concise instructions and is easy to use and to service. Even though it is intended as a back-up light or day-use light, experienced divers in clear tropical waters will no doubt find it useful as an all-purpose night light.

pouches, plus a variety of clips and

other attachments to secure lights to

UNDERWATER KINETICS • We tested eight of Underwater Kinetics' line of 13 diving lights. All UK lights performed better than their sizes would indicate in the beam intensity tests.

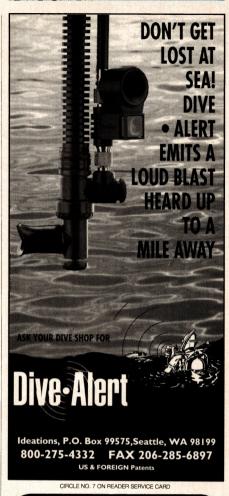
The MiniQ20 uses DL123A batteries, which can be hard to find. Rather than a lanyard, it has a clip and ring for attachment as well as double O-ring seals. The MiniQ40 comes with a snap-on rubber strap so you can attach it to your mask.

The SL4 and SL6 were the brightest small- and medium-sized lights, respectively, that we tested. The SL6 comes with a lens shroud to reduce side glare. The UK400R comes with a lens shroud that is available as an option on the UK400.

The UK800R and UK1200 are the big boys of Underwater Kinetics' line. The UK800R (rechargeable) comes with a lens shroud and a charger and is also available in a video version. The non-rechargeable UK1200 comes with the same extras as the UK800. Both have adjustable handles which produce either pistol or lantern grips, locking switches and wide, high-intensity beams.

Underwater Kinetics also offers a personal locator light called the Dive Beacon that comes as a kit which includes both white and red beacons as well as red and white spots. The Underwater Kinetics dive light catalog provides excellent information to help you understand and select diving lights.

Jon Hardy, former executive director of NAUI, has been an instructor since 1961 and is currently an instructor evaluator for SSI. John Brumm is the West Coast editor for RSD.







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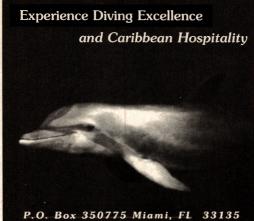
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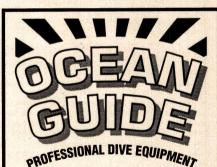
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#### THE WATER PLANET

(Continued from page 126)

shoreline. On the opposite coast, federal officials have approved a plan to reduce fishing of some threatened North Atlantic species by 50 percent over the next five years. And in agreement with Russia, a similar ban has been put into effect to restore stocks in the North Pacific's Bering Sea.

But perhaps the most heartening news of all is that across wide swaths of the world's oceans, a moratorium on drift netting first called for by the United Nations last year actually seems to be having an effect. First passed in January 1993 and reaffirmed earlier this year, the moratorium, like almost all legislation passed by the U.N. General Assembly, carried neither penalties nor enforcement provisions. The possibility of moral persuasion, however, brightened when the negotiations about the future of the world's fisheries were able to enlist

the interest of both the 60 "coastal" nations—led by Argentina, Canada, Chile, Iceland, New Zealand and Peru—whose fishing industries are largely confined to their 200-mile territorial waters, and the 10 "dis-

and Taiwan, all with vital fisheries industries, no longer allow their high seas fishing fleets to drift-net, and as a result, both the Pacific and North Atlantic oceans are free of the gossamer curtains of capricious death. tant-water" nations, including Unfortunately, as is so often the case,

THE GOOD NEWS is that across wide swaths of the world's oceans, a U.N. moratorium on drift netting seems to be having an effect. Officials say that much of the world's oceans are now free of drift nets.

China, Japan, Russia and the United States, with fleets of more modern, long-range vessels.

The good news is that U.N. officials now say that much of the world's oceans are free of drift nets. Specifically, it appears that Japan, South Korea there is also some not-so-good news. For example, officials admit that it is possible that large drift nets may still be in use in the Indian and South Atlantic oceans. A comparative lack of official scrutiny of those areas and the meager surveillance of the fleets that fish there mean that drift netting could still be practiced. Simply put, no one knows for sure.

Even more troubling, however, is the fact that Italy, in direct contravention of both the U.N. moratorium and binding European Union regulations, appears to be continuing to allow its 700-vessel Mediterranean fleet to deploy drift nets six to seven miles long. According to the environmental organization Greenpeace, each night during the swordfish season Italian fishing boats set 4,500 miles of drift nets. The maze of deadly nylon is, in the reported words of a Greenpeace spokesperson, "enough to span the entire length of the Mediterranean twice." And sadly, for every pound of pesce spada caught, another five pounds of sea life is purposely destroyed.

A step forward, a half-step back, and so many steps still to come.

Contributing editor David Abrahamson writes on natural history and environmental subjects for a number of national magazines, including The New York Times Magazine, Oceans and Science.

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## THE WATER PLANET

## FINAL CURTAIN

After a decade of bitter debate and untold marine destruction, drift-net fishing may finally be on the decline.

BY DAVID ABRAHAMSON

or divers who track the daily twists and turns of the environmental news stream, any notion of genuine progress sooner or later becomes a somewhat elusive concept. Almost every step forward appears to be accompanied by a half-step back—sometimes a step and a half. Worse still, it seems as though little is ever accomplished until the eleventh

hour, when damage of nearly irreparable proportions has already been done. Nevertheless, even though virtually every item of good news carries with it a bit of bad, and every victory must in some way be qualified, divers and all who care about the health of the Water Planet do have recent reason to celebrate.

The issue at hand is the commercial fishing practice of drift netting—the stringing of fine-meshed plastic nets, 30 to 40 miles in length, which typically extend down to a depth of

30 feet below the surface. Deployed across vast reaches of the ocean, these "curtains of death," as they're sometimes called, entangle and drown all manner of sea life, including large numbers of marine mammals protected by international agreements, such as whales, porpoises, sea lions and seals. Additionally, drift nets ensuare and

fatally injure unimaginable numbers of fish (and their young) that have no commercial value. In a study published last year, for example, it was found that only 18 percent of the catch landed by drift netting in the Mediterranean was salable; the balance of the take, comprised of more than 80 species of sea life, had to be thrown over the side as useless discard. "It is," said one

delegate to a recent United Nations conference on the subject, "one of the most destructive fisheries practices ever invented."

One result of the extraordinary and indiscriminate lethality of drift nets is that major portions of a region's food chain are removed. And even though other forms of overfishing have contributed to the recent disastrous decline in the world's fish stocks, it is generally agreed that drift nets have been a major factor in the sharp decreases in



worldwide catch rates that began four years ago.

In response, a number of actions have been taken on the state, national and international level to help reverse the trend. Earlier this year, for instance, a new California law went into effect that bans gill netting in a threemile zone along the state's (Continued on page 125)

BOB GOLDSTROM



